



# **UNIVERSITÀ DEGLI STUDI DI PADOVA**

**Dipartimento di Scienze Economiche e Aziendali “M. Fanno”**

**CORSO DI LAUREA MAGISTRALE IN  
BUSINESS ADMINISTRATION**

## **COPING WITH ADVERSITY: INDIVIDUAL AND ORGANIZATIONAL RESILIENCE IN SMALL AND MEDIUM ENTERPRISES**

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Anno Accademico 2018 – 2019





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## **Ringraziamenti**

Per il costante aiuto che ho ricevuto nella stesura della tesi, vorrei ringraziare la Professoressa Martina Gianecchini e la Dottoressa Simona Leonelli, di grande aiuto sia per gli argomenti teorici che per la costruzione del modello statistico.

Grazie ai miei genitori e ai miei familiari tutti, che mi hanno permesso di raggiungere questo grande traguardo, sostenendomi economicamente e moralmente.

Grazie ai miei amici di una vita, che ci sono sempre stati.

Grazie alla città e all'Università di Padova, che mi ha fatto vivere due anni stupendi, facendomi capire cosa voglia dire vivere l'esperienza universitaria a 360°.

Grazie al progetto Erasmus, che ha creato una vera generazione di cittadini Europei e permette di vivere esperienze uniche e autentiche.

Grazie ad AEP-ESN Padova, perché mi ha fatto conoscere amici veri e mi ha trascinato in un sogno dal quale non vorrei mai svegliarmi.





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## **Introduction**

My master thesis aims at investigating the importance of resilience for the firms, both and individual and organizational level. In particular, my will is to study a possible positive relationship between individual resilience of business leaders of small and medium enterprises and the expected performance of the firm he or she is the leader of.

A big focus will be also given to the organizational components that can form and enhance organizational resilience, testing whether this factor acts as a mediator for the direct relationship of the model.

With the increasing pace at which the environment evolves, with the consequent increase of both the possible opportunities and threats for firms, resilience has become a key success factor not only to survive, rather to differentiate and possibly overperforming the competitors. This is one of the reasons why I think it was worth to write my thesis about Resilience, trying to add valuable insights for literature and for human resource management in their everyday practices in the business environment.

I will analyze the topic in six different chapters.

The first one is useful to provide an introduction to resilience, defining the concept and giving an overview on its importance in the modern world.

The second chapter explains individual resilience, providing some insights on whether it should be seen as a trait or as a process, also clarifying its measurement, and investigates the relationship between resilience and leadership.

The third chapter is based in the explanation of organizational resilience, both from a theoretical and practical perspective, and also introduces the model of McManus et al (2008), which is the base for the measurement of organizational resilience in my model.

In the fourth chapter, a focus on small and medium enterprises is given, since they represent the context for this research. Indeed, all the leaders interviewed for the project are leaders of small and medium enterprises of the Milan metropolitan area and emphasis is given to the particular characteristics and importance of SMEs across Italy and Europe.

The fifth chapter regards the empirical model, with the data sample, measures, hypotheses and results. Finally, in the sixth chapter I drive both theoretical and managerial implications, together with limitations for future research.



## 1. CHAPTER ONE

### **Resilience: a global phenomenon**

#### **1.1 An Introductory definition**

The concept of resilience has been investigated from various points of views, concepts and different sciences in the last decades, and the phenomena is so broad that it can be applied from psychology to management, from physics to ecology, from engineering to economics.

According to the major dictionaries, the accepted definitions of resilience point out two characteristics that need to coexist so that it is possible to define a person or entity as resilient or as displaying resilient characteristics or behaviors.

From one side, resilience is indicated as the ability to overcome a negative situation or event, to recover from a difficulty turning into a positive state, in terms of mood, internal characteristics or final outcome; from the other side, as the ability of something, like a substance, typically within a physical context, to return to its initial shape after having suffered a stress or trauma, a change of its state (Cambridge dictionary).

If the former definition is general and can be easily imagined to be applied to various fields, the latter is more specific, but also susceptible of application in research studies different than physics, if the concept of someone or something returning to its original state after a shock is viewed more generally, as we will investigate later on in this research.

The definition of resilience points out two main components: a negative situation, adversity, uncertain situation, high risk or shock and the consequent, time related response of an individual or an entity, showing the ability to react to the first stage situation, to effectively respond, to overcome it and to recover, to come back to the original state, to adapt and, most importantly, to be strengthened by the first component, after a reactionary state.

I will now more deeply analyze these two components from different fields, trying to describe the common points in literature using an interdisciplinary approach.

## **1.2 A closer look from different fields**

As previously mentioned, the concept of resilience is so wide and multipurpose that many researchers in different fields have investigated the topic. Indeed, due to the importance of this concept, major streams have been developed in psychology, ecology, engineering and business, providing interesting results for the debates concerning their subjects. In this section, I will focus on the first three, because the deepening of business and organizational related resilience is the major purpose of this research and will be therefore treated in the other chapters and paragraphs.

### **1.2.1 Psychology**

The first stream of research about psychological resilience can be rooted to fifty years ago, when the researchers focusing on this topic were still few. In particular, the interest was devoted to that kind of population, mainly children, living and growing in a high risk context, that were able to overcome the big threats and challenges they were facing (Goldstein and Brooks, 2005), those children defined invulnerable (Anthony, 1987).

According to Goldstein and Brooks (2005), the attention on this topic has increased in the last twenty years, and this has happened for two main reasons.

First, the increase of the complexity of the world directly means an increase in the number of challenges and possible adversities faced.

The second point, which is a direct consequence of the previous one, is that researchers have increased their interest in finding solutions to face those growing challenges encountered by youngsters and adults.

When studying differences in children behaviors and reactions to changes, adversities or uncertainty, studies discovered that the ones who had experiences shocks or negative situations before have eventually developed resilience, meaning they were better able to adapt, react and fight to come back to the initial situation or, in some cases, to achieve a stable level of improvement. Indeed, those studied proved that there was a large number of children coming from at risk population that obtained outstanding scores in mental and physical health, overcoming the initial conditions of disadvantages at which they were subjected (Werner and Smith, 1982; Rutter et al, 1979; Garmezy, 1976; Murphy and



Moriarty, 1976). Some of the studies around this topic have been conducted on children having mothers suffering of schizophrenia disorder, with children showing the positive characteristics described above.

Moreover, According to Masten and Coatsworth (1998), children growing in risky environments or with particularly difficult familiar situations became better problem-solvers, they engaged well with other people and they were effectively perceived positively either by themselves or society members. As Ungar (2005) recalls, without risk, there is no resilience: the former is, speaking in mathematical terms, a necessary, but not sufficient condition for the latter to happen. In other words, only if there is a risky or uncertain situation an individual or an entity can develop and show resilience, but not all of them will prove to be resilient after a shock or a negative situation. Some individual react incredibly well to challenges and adversities and the solutions might be invisible to outsiders (Ungar, 2005). Some of them, on the contrary, will simply not display the features of adaptability and change typical of the concept of resilience itself.

### 1.2.2 Ecology

According to the definition of the Cary Institute of Ecosystem studies, ecology is “the scientific study of the processes influencing the distribution and abundance of organisms, the interactions among organisms, and the interactions between organisms and the transformation and flux of energy and matter”.

The first study about resilience in ecology was conducted by C.S. Holling in 1973, that introduced the word as a way to explain the non linear dynamics of the systems he was studying (Gunderson, 2000).

Holling (1973) argues that there are differences in how an ecological system behaves in stable or unstable conditions. Indeed, when the system is affected by external changes and unexpected events, the persistence of the relationships becomes the focus. Both stability and resilience are needed to define the behavior of the system, with the latter defined as the ability of a system to absorb changes and still persist or as the amount of disturbance a system can absorb without changing state. However, if stability “emphasizes the equilibrium, the maintenance of a predictable world”, resilience “emphasizes domains of attraction and the need for persistence” (both Holling, 1973, pag. 21). The final conclusion of Holling regards extinction: the interaction of random events

and deterministic forces can lead to the extinction of a system if resilience is lost or reduced.

Continuing the studies of the colleague, Gunderson (2000) introduces the term “adaptive capacity” to indicate a visible direct consequence of resilience in ecological systems, the ability to change and positively absorb the new condition.

### 1.2.3 Engineering

Resilience in engineering context has a similar application and definition as in ecology. It is argued to be a form of control, that cannot simply be engineered, created and placed in a system, but that requires a continuous check of the whole processes. It is about building systems that can anticipate possible threats, survive and learn through adaptation (Madni and Jackson, 2009).

The same authors argue that failure in an engineering context, which is too often attributed to human error or to a malfunction of a machine, should be instead viewed as the inability of the system to adapt to continuous changes.

Indeed, it is also noted by Hollnagel and Woods (2006) that the safety of a system is not considered as a property, as something that the system has, rather as something that the system does. Therefore, resilience is seen as a quality of functioning and this leads to an important consequence: resilience cannot be engineered or created simply by adding better features or procedures. It requires monitoring and improving, learning by doing. It regards the ability to cope with complexity (Hollnagel and Woods, 2006).

Resilience engineering is composed of four cornerstones, that are learning, responding, monitoring and anticipating that allow to increase the number of successful processes, rather than to decrease the number of failures.

## 1.3 The criticality of Business Resilience in the present days

After this brief introduction about how resilience has been studied in different fields and sciences, I will now focus on why and how resilience has impacted businesses and

organizations, trying to underline the key position it occupies in managerial and economic studies.

The growing number of papers and researches around the topic of business and organizational resilience goes hand to hand with the critical role that it has assumed in the survival of the firms in our age.

The shift from a predictable and stable to a discontinuous and fast pace environment has changed many perspectives of the firms, which now need to be prepared for the unpredictable (Home III and Orr, 1997). Moreover, it is argued that attention on this topic has risen in the last two decades due to a growing number of challenging events that companies are facing. Higher complexity does indeed mean more and harder challenges for companies to face.

Terrorist attacks, natural disasters like the eruption of the Iceland volcano in 2010, tsunamis and hurricanes both in Asia and United States and, of course, political and economic instability, with the two main examples of Brexit and of the financial crisis of 2008, increased the interest about implementing strategic resilience inside an organization, also concerning practical ways to be ready to respond to unpredictable events (Annarelli and Nonino 2016, Bhamra et al, 2011). There is no firm that can now resist in this interconnected world as an independent entity (Bahmra, et al, 2011).

### 1.3.1 The VUCA world

In particular, a word to describe the modern environment where we live has been created: VUCA, that is an acronym that stands for volatility, uncertainty, complexity and ambiguity. As Bennett and Lemoine (2014) explain, a VUCA world creates more and more traps for businesses. In a more optimistic view, leaders also see major opportunities in those conditions if they try not to passively respond, but to anticipate conceivable changes and to take advantage of possible, unforeseen developments. However, capitalizing an opportunity requires a full understanding of it (Bennett and Lemoine, 2014).

Indeed, according to the authors, three major problems around the word VUCA exist that are source of misunderstanding and mistakes.

First of all, the four terms composing the word VUCA have all become synonyms, have all become a way to generally indicate an unpredictable world: however, even if the words express related concepts, they are different terms that indicate different components of the environment and it is by really understanding the differences among them that leaders can effectively manage volatility, uncertainty, complexity and ambiguity.

Secondly, the concept is often treated as a whole and, even if the different meanings expressed by the four words are understood by leaders, too often managers offer generic or broad solutions to VUCA as one entity, instead of dealing with the four different situations, generically proposing to “innovate”, “be more creative” or “be more flexible” as a way to respond to uncertainties.

The third point is that leaders believe strategic planning or long-term strategies are useless since we live in a VUCA world and therefore they believe the four conditions make it not worth to plan. The problem is that this false belief derives from the fact that managers do not divide VUCA in its four components, that is why they think they do not have instruments to deal with such a complicated issue.

However, as already stated, the four components must be analyzed separately because, even if they are strongly related, they express different concepts that can be studied and faced up from different perspectives.

*Volatility* refers to an unstable situation or condition, something that can rapidly change all of a sudden. However, it does not necessarily imply a complex, uncertain or ambiguous one. In order to effectively deal with volatility, managers need to understand both threats and opportunities that come aside and they need to answer with agility. It is, of course, expensive, but it allows the firm to rapidly adapt and answer critical and unforeseen changes of the market.

*Uncertainty* exists when a situation is characterized by lack of knowledge, when there is information scarcity or when it is difficult to interpret information. Uncertainty and volatility are different because an uncertain situation may also be stable, it does not require an unstable condition.

The best way for managers to deal with uncertainty is trying to fill this gap of knowledge by gathering information, developing and using methods for collecting, interpreting and sharing data. Collecting knowledge to solve uncertainty makes situations more predictable and thus easier to manage.

*Complexity* reflects in the inability of handling different sources of information or in the incapacity of understanding the connections among them.

A complex situation may not be ambiguous or volatile, rather its complexity may derive from the overwhelming information, difficult to elaborate and to understand, that make the business world a real and tuff challenge.

In this case, firms need to carefully handle their resources, allocating them in the most efficient and effective way. It is also suggested by literature that firms that adapt and evolve coherently to their size, scope and the type of environment facing, perform better compared to firms that are static in response to business changes. (Heugens and Lander, 2009). Moreover, the majority of the firms that can anticipate and initiate changes and that can recognize and respond to strategic changes are the ones over-performing their peers (Horney et al, 2010). The Boston Consulting Group stresses the importance for organizations to become adaptive firms (Reeves et al, 2012) so that they can learn better and faster, with companies like Amazon, Apple and Google cited as examples.

*Ambiguity* regards situations where there are complex cause effects mechanisms, and it usually refers to newness in products, markets, technologies and so on: since there are not similar situation occurred in the past, it is impossible to make comparisons and gathering information loses its importance, because it would be difficult to know how to use those information properly. It is argued that the best way for firms to deal with ambiguity is experimentation, the only way companies can effectively deal with newness.

It is here very clear why each component of VUCA should be treated separately: the solutions adopted to respond to one of those not only can be useless for the others, but also counterproductive. For example, gathering loads of information and spending time and money to process them would only lead to a waste of resources for the organization if ambiguity were the challenge a firm is facing.

### 1.3.2 The Growing Interest in Resilience

The question that many papers and reports address about resilience is why and how some companies resist, recover and adapt from a state of crisis, while some others cannot deal with the complexity of the environment or the disruptive pace of unforeseen events (Denyer, 2017; Mitroff, 2005). Easy to say, companies possess different resources and capabilities, and this can indeed be a valid answer: different people within a different context react in various ways.

A recent study from Deloitte (Dent et al, 2018), interviewing more than 500 crisis management executives, underlines why resilience should be a prominent topic of interest and study.

Nearly 60% of the respondents believe crisis have become fiercer today than ten years ago and, even though many crises are not foreseen, they can be alerted. In this sense, the top three measures that executives believe are key are the need to improve detection and early warning signals, investing more in prevention and do more to identify potential crisis scenarios.

Deloitte discovered from the survey that having a crisis plan significantly reduces crisis impact, especially if leaders are involved, and that the majority of the firms involve external parties to mitigate crisis and find solutions.

According to the Deloitte analysis, it is worth to frame a crisis in different steps and the consulting group has individuated four that distinguish the crisis management life cycle. The first one is risk: understanding the possible risks of the business, meaning continuously assessing the potential leak where the organization might be attacked, having a whole picture of the situation.

The second one is issues: prevent crises, manage issues and eventually prepare for the worst, the crisis.

Crisis has to be responded and the firm has to deal with it prepared; it is the time to avoid the bounce back, to defeat the crises while also running the usual business.

Finally, the firm will have to reborn like a Fenix, learning from the crisis and adapting to the new environment and the new challenges facing in the future.

In line with the concepts just described by Deloitte and as Annarelli and Nonino (2016) note, similar to the various definitions of resilience broadly accepted, the concept consists of both a reactionary and a proactive side, meaning that resilience is seen as the reaction to an unforeseen event, the adaptation after something shocking occurs, but also as the attempt to flip the coin and to build a competitive advantage, trying to overcome a possible crisis after careful planning and preparation for the unknown, positively evolving eventually.

There is the need for organizational stability at one side and organizational change at the other (Linnenluecke, 2017).

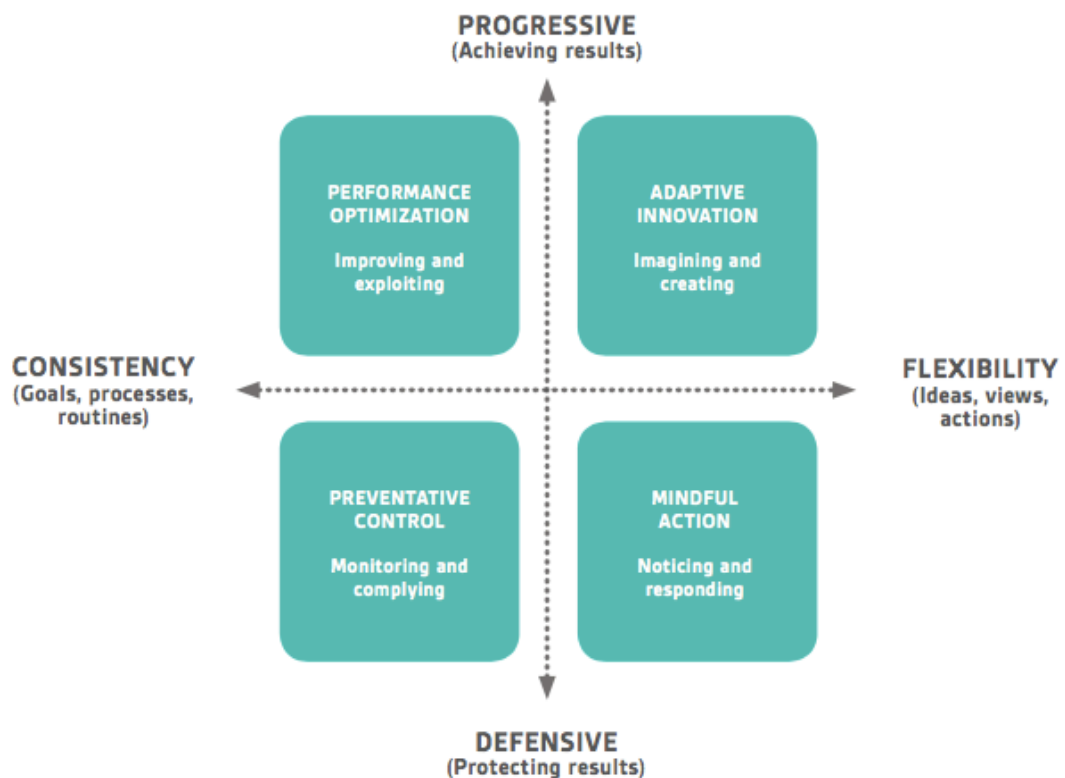
A report from BSI and Cranfield School of Management (Denyer, 2017) indicates business resilience as something that develops in phases, meaning that an organization

can reach different levels of resilience that also stand for different perspectives. “Organizational resilience is a journey, not a destination” (Denyer, 2017, pag.20). The plus of this research is the conclusion that different organizations can have different levels of resilience, that show different mentalities, and that a company can actively improve its resilience by working on concrete assets; that is, companies can train to be better prepared for unknown and disruptive events so that they can overcome them, grow and, by improving resilience, possibly increase performance measures (Mallak, 2016; McCann, Selsky and Lee, 2009).

The five phases described in the report are preventive control, mindful action, performance optimization, adaptive innovation and paradoxical thinking.

The first two phases represent a defensive perspective, viewing resilience as a reactive response to external threats, focused on loss avoidance and value preservation. The third and fourth phases evolved as a consequence when firms understood that organizational resilience was not only about reacting to uncertainty, crisis and risks, but also to try to anticipate them, the ability to bounce forward (Manyena, O’Brien, O’Keefe and Rose, 2011). Therefore, performance optimization means improving existing competencies to preserve customers and target markets, while adaptive innovation, as the term easily suggests, is all about thinking outside the box, focusing on innovation to anticipate future possible disruptive technologies and new markets in order to take advantage from them. These four phases of organizational resilience are grouped by the BSI report into a matrix to summarize each phase and each perspective (see fig. 1.1)

Fig 1.1 The organizational resilience “Tension quadrant”



Source: Denyer (2017), Organizational Resilience: A summary of academic evidence, business insights and new thinking

This allows us to describe the last phase: firms that can balance the four previous phases and can manage the tensions among them reach paradoxical thinking and are considered truly resilient.

Resilient organizations have built the instruments to overcome a crisis and know how to use those instruments. As a study from HRPS (2009) states, resilience and agility in an organizations are key attributes that allow a firm to manage the so called environmental turbulence, defined as “the pace and disruptiveness of change within an operational, competitive or larger contextual environment” (pag. 45).

### 1.3.3 The “Adaptive Advantage” and the relationship with performance

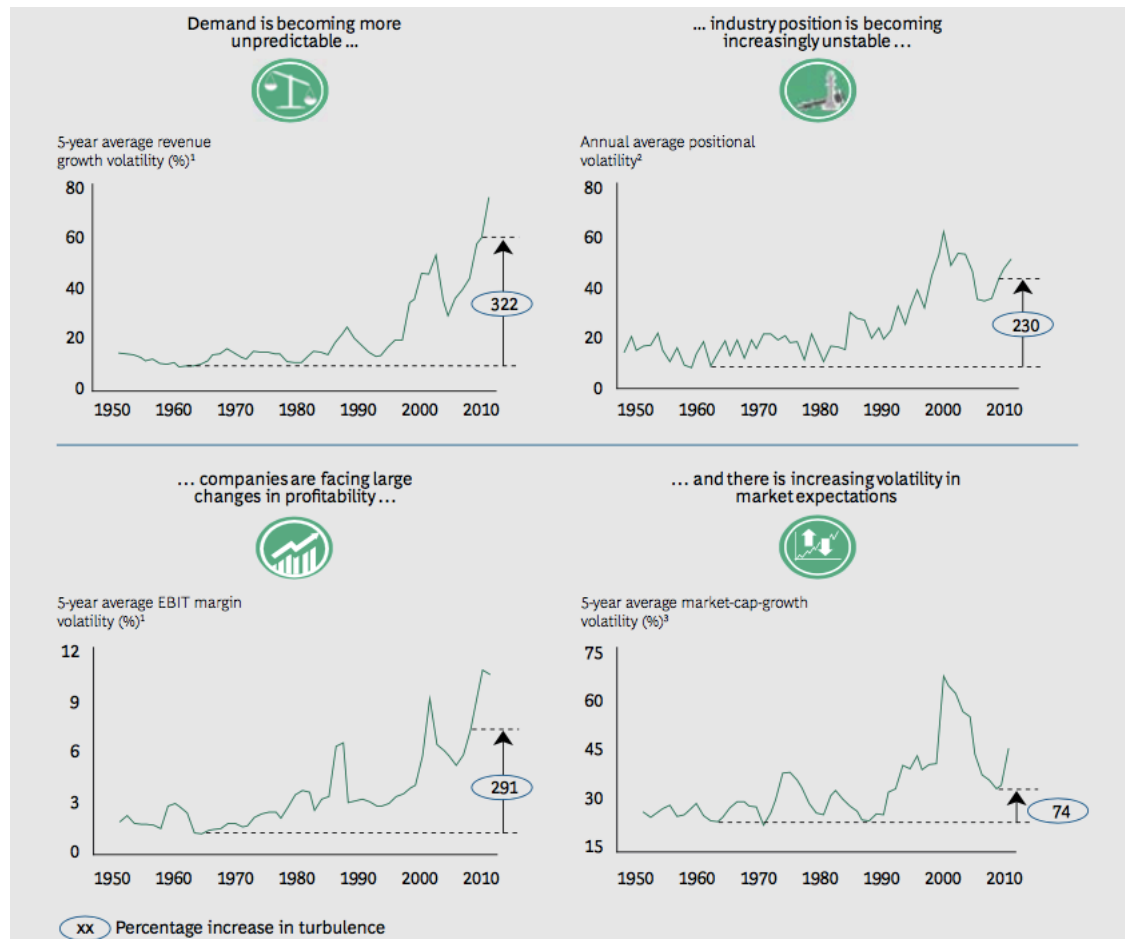
The Boston Consulting Group (BCG) defines the era we are living in as “the landscape of turbulence” (Reeves et al, 2012, pag. 4) and stresses the importance of adaptation and



resilience because of different reasons: turbulence is more frequent than in the past and it has increased in intensity and it lasts longer, as I have described above.

In detail, BCG argues that turbulence has increased and has determined higher volatility if compared with the past under various aspects (see Fig. 1.2)

*Figure 1.2 The increase of turbulence under multiple dimensions*



Source: BCG, *The most adaptive companies* 2012

The rise of turbulence has led to a consequence: the creation of a new competitive advantage, which is defined as “adaptive advantage”, that distinguishes firms that adapt better, more rapidly and more economically than the others.

Since resilient companies can better cope with adversity, recover from crisis, learn from negative situation and proactively respond, it seems logical to think that they should score higher, on average, if compared to low resilient firms, on performance indexes.

This affirmation is supported by a study from HRPS (2009), which finds positive correlation between resilience and the two factors used to measure performance, which are competitiveness and profitability. Businesses experiencing environmental turbulence

score low on competitiveness and performance, but more adaptive and resilient firms significantly improve those ratings.

Alessandri et al (2015) found modest correlations between an index of resilience and job performance at individual level, while Mallak (2016) also found some positive relationship among resilience and self-efficacy, workload and work locus of control; his explanation for these findings regards the fact that more resilient workers are less likely to experience work interruptions. However, he also states that there is little empirical investigation between resilience and performance at organizational level, since most of the studies focus on mental health concerns at individual level.

These initial findings from reports and literature are fundamental in the studies about resilience at organizational level. Not only resilience has a validity in facing difficult situations or overcoming crisis and adversities, but investing in building organizational resilience or having a resilient approach in the person of the leader might also mean better performing in the market.

The Boston Consulting Group (BCG) has created an index, called “BCG Adaptive Advantage Index”, in order to investigate the correlation between adaptiveness and performance (Reeves et al, 2012).

Adaptiveness was measured in terms of the performance of a company in relation to its peers in periods of high turbulence in demand, competition, margin and capital market expectations.

The first important finding is that adaptiveness showed a strong correlation with market capitalization over the entire period of investigation, meaning that this attribute creates value both in the short and in the long term. Not only, then, resilience is associated with long term planning and strategic planning, but also allows firms to handle short term issues and, in general, helps the firm having a different mentality and approach towards crisis and adversities.

Moreover, adaptiveness creates a “performance gap”: while in periods of calm the performances of the companies analyzed, within similar businesses and contexts, are similar, in turbulence periods the most adaptive ones outperform their peers. This suggests that firms that develop resilience can better deal with uncertainty and are prepared to fight in different conditions, while their peers who do not show resilient behaviors can be great performer under stable and predictable conditions, but do not have the instruments to navigate in unexplored seas under adverse conditions, therefore showing unpreparedness to the challenges of the environment.

Finally, BCG discovered that adaptability does predict future performance, with the firms that scored higher on the index that were the ones more likely to experience higher future growth in value. Translated into practical terms, investing in adaptiveness and resilience does pay off, and investing is the right term, because nothing comes for free.

Indeed, adaptiveness can require flexibility and experimentation, and these are not achieved at zero cost. Adaptive companies are the ones embracing diversity and redundancy, that choose not to maximize performance through efficiency, rather they invest in installing a mentality they could benefit from during crisis periods. Indeed, the BCG research shows that the advantage of this adaptive approach is much higher if compared to what these companies lose in terms of efficiency or effective performance in the short term, in quiet periods. For instance, the top decile companies of the index outperformed the last decile by 25% in market capitalization during turbulent quarters, while being only 3% lower during stable quarters.

The “BCG Adaptive Advantage Index” is built over five main factors that, summed up, indicate the representation of adaptive firms: signal advantage, which is the ability of anticipating changes by correctly interpreting signals, experimentation advantage, how efficiently and effectively a firm is able to innovate, organizational advantage, which expresses the ability to configure the structure of the firm so that good communication, knowledge flow and flexibility are guaranteed, systems advantage, the ability of taking advantage of multi company ecosystems and eco social advantage, which is adapting and innovating the business model to different ecological, economic and social systems both in the short and long run.

BCG also suggests three concrete steps firms should accomplish in order to gain adaptive advantage.

The first one consists in a benchmark with the competitors, with the final of understanding which competitors are the most adaptive. Questions like “how fast is our industry?”, “who are the key players?”, “where am I compared to the peers?” are all questions that help accomplish the step.

The second step consists in a self-evaluation of the strengths and weaknesses in relation to the five capabilities, a self-diagnosis with the goal of understanding personal capabilities.

Third, stated the weaknesses, a firm should understand how to fill those gaps and to implement concrete actions to do so.

Building capabilities to improve the five factors described above effectively helps to build and improve the adaptiveness of the company and this, according to BCG, translates into financial rewards.

## 2. CHAPTER TWO

### **Individual Resilience**

Studies investigating resilience at individual level have been very common and widespread among psychologists. The most common approach has been to compare two or more groups that possess the same level of exposure to risk, but that result in different outcomes (Toland and Carrigan, 2011).

For example, a study from Hegney et al (2007) concluded that not all individuals in a particular disadvantage situation (in that case, a rural community in Australia) showed resilient characteristics, but that different members responded in different ways, even though the adversity condition studied (that is, the rural context) was central in the development of resilience in the identified subjects.

The main debate around this field of research is whether resilience is the result of personality and human interior traits, or more the result of the influence of others and of the environment, making it a process, dynamic, in evolution, allowing individuals to strengthen their resilience or, on the opposite, to lose some of its characteristics over time. In other words, should resilience be considered the cause of an outcome or the outcome itself? (Glantz and Johnson, 2002).

#### **2.1 Resilience and Personality**

One stream of research focuses on studying the relationship between resilience and personality with a standard approach consisting in looking for specific personality characteristics to mark out resilient people, individuating a sort of resilient profile.

Is there a pattern showing similar characteristics that resilient people have in common? Kossek and Perrigino (2016) note that there is not uniformity in classifying resilience as an individual trait or a capacity that can be enhanced depending on the context.

In a research by Waugh, Fredrickson and Taylor (2008) the different respondent behavior of resilient and non-resilient people when facing a threat was tested. First, all individuals

were given a clue that a revolting image was going to be shown and that provoked the same cognitive effects - regarding amygdala, insula and the anterior cingulate cortex - on both resilient and non-resilient people. What was interesting came next. When facing a neutral image after the repelling one, resilient people were able to completely emotionally disengage, returning to normal cognitive levels, recovering very quickly from a trauma, while non resilient people were not able to overcome that fast from that negative previous situation.

Noted that, we can think that the way different people react to adversities, concluding in developing or not resilient characteristics, are differences in everyone's personality and internal traits.

Personality, meaning "the way a person is, shown by the way he or she behaves, feels and thinks" (Cambridge dictionary), varies across individuals and, according to one of the most widespread and used theories, the Big 5 Model of Personality (5PFs) can be sufficiently described using five overall factors, the primary factors of personality. Obviously, it is important to note that these five factors cannot provide exhaustive explanations of personality, but they represent personality at the broadest level of abstraction, with each dimension summarizing a more specific personality characteristic (John and Srivastava, 1999).

The Big five model assigns a certain score on every factor, coherent to a person's thoughts, acts and behaviors, and is able to build a certain personality profile with the final scores of the five factors.

*Openness to experience.* It has been described as the depth and complexity of an individual's mental life and experiences (John & Srivastava, 1999). It regards the ability of people to experience new challenges or to think outside the box. A person who scores high on openness to experience is generally creative, easy going and open to meet new people, while who scores low probably prefers to engage in routine behavior or work and to stick with what he or she knows.

*Conscientiousness.* It is a trait that can be described as the tendency to control impulses and act in socially acceptable ways, behaviors that facilitate goal-directed behavior (John & Srivastava, 1999). Who scores high on this factor generally excels in planning and control, is determined to pursue goals and has ambition, as opposed to a person that is impulsive, procrastinates and has poor discipline.

*Extraversion.* This factor refers to the way a person interacts with the others, whether he or she tends to meet new people, to socialize and to interact, being comfortable with

unknowns (extrovert) or is more reserved, prefers to stick with the group of people he or she already knows, is quiet and introspective (introvert).

*Agreeableness.* It differs from extraversion because it concerns how well people get along with others, whether they are kind polite, patient, sensitive: it regards the way a person communicates and interacts with another one. A person who scores low on agreeableness, however, is not necessarily cruel, unfriendly or disrespectful, but probably lacks the warmth of an agreeable person.

*Neuroticism.* It refers to everyone's emotional stability; who scores high on neuroticism might be pessimist, with lack of confidence and insecure, while people that score low tend to be confident, brave and with high consideration of their own abilities.

The Five Factors model (FFM) has become central in business organization issues, because the five factors have been used in order to predict work related outcomes. Many personnel selection decisions, for example, are driven by differences in employees' personalities and literature has confirmed the validity of this construct (Salgado, 2003; Rolland and De Fruyt, 2003).

Here is why the Big Five model of personality can also be useful in our research on resilience.

We stated above that personality, combined with the interactions with common and unique environment, participates in the creation of a person's level of resilience, meaning that the difficulties and situations a person experiences can result in a higher or lower output of resilience, depending on everyone's different personality.

Consequently, a new approach has emerged in order to connect resilience and personality: starting with a model (like the FFM) and moderating how each trait may relate to resilience in different situations, resulting in a broader and more integrated approach.

### 2.1.1 Resilience and The Big Five Model of Personality

Using the FFM for this scope is a validated method (McCrae and Costa, 1997); moreover, according to John and Srivastava (1999) it is sufficiently reliable for generalizations across samples, raters and methodological variations and is also generalizable across cultures and languages (John, Goldberg and Angleitner, 1984).

The approach followed by literature has therefore been to try to discover whether higher or lower levels of each factor of the Five Factors Model displayed in an individual were connected to a certain resilient output, determining the prototype of a resilient person following the FFM scheme.

There are various studies that measure how each factor of the FFM relates to resilience. Friberg et al (2005) found that all personality factors were related to resilience, expressed as “well-adjusted personality profile”, meaning that a correlation among all factors and resilience was found by the authors. In a study about resilience in the Kosovo crisis by Riolli et al (2002), the results showed that resilience was related to a combination of higher optimism, extraversion, openness to experience, conscientiousness and control coping. More deeply, higher neuroticism and lower extraversion were related to greater maladjustment, meaning to lower levels of resilience.

In this study, individuals who better coped with stress (= resilient individuals) showed more openness to new experiences, better organization, a more positive tendency to get along with people, as well as less anxiety and emotional reactions. Similar findings of a positive relationship among personality with extraversion and conscientiousness and a negative relationship with neuroticism were found by Campbell-Sills et al (2006), Fayombo G. (2010) and Nakaya et al (2006).

## **2.2 Resilience as a Process**

Another stream of research considers resilience as a transactional process, a capacity that develops in response to adversities in the context of person environment interactions (Egeland et al, 1993).

According to this view, resilience is not a childhood given and should be seen as an output, a process.

As stated by Cicchetti and Schneider-Rosen, (1986), a combination of biological, sociological, genetic and psychological factors drive the process and other factors, like the environment, may serve as protective or risk variables, influencing the final behavior. Then, what determines whether an individual, after being subject to an adversity, shock or negative condition, will display resilience? Why will some individuals grow a resilient behavior or resilience and others will experience negative outcomes from a negative



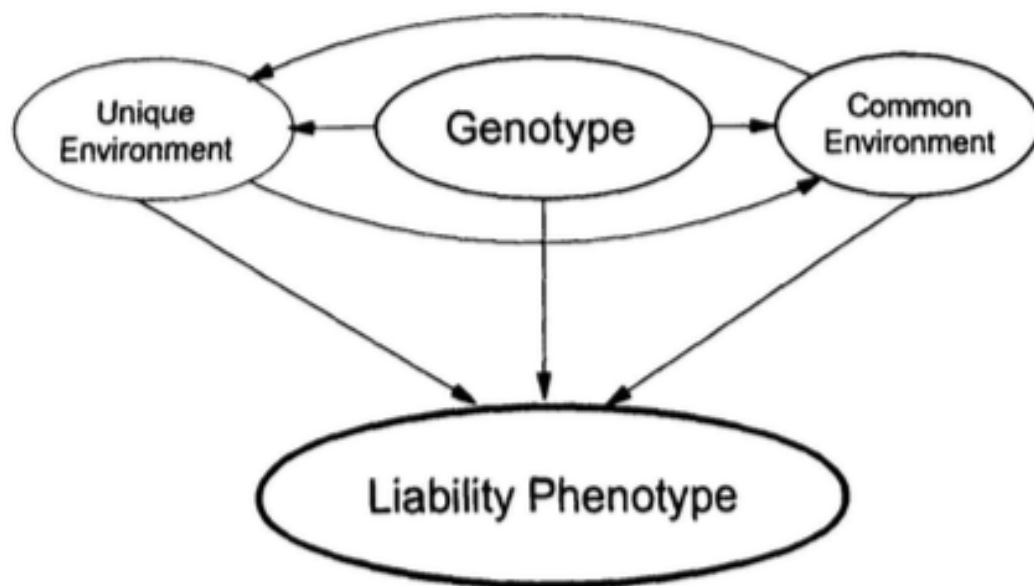
situation? Glantz and Johnson in their book “Resilience and development, positive life adaptation” (2002) offer a satisfactory explanation, analyzing the determinants of individuals’ differences. They make and extensive use of biology and science to describe resilience, therefore we first need to define the meanings of crucial terms in the explanation, like genotype and phenotype.

According to “Personal genetics education project”, a genotype is a person’s “complete heritable genetic identity”, meaning the interior genetic characteristics of an individual. On the contrary, a phenotype is “a description of [a person’s] actual physical characteristics” and is generally affected by its genotype.

Genotype and phenotype are used in order to describe respectively the individual’s internal characteristics and the external behavior, specifically meaning the likelihood of developing and showing resilient behavior.

The model is described as follows: genotype (internal characteristics), unique environment and common environment determine liability phenotype (final output), as shown in figure 2.1.

*Figure 2.1 Genetic and environmental determinants of liability phenotypes*



Source Glantz & Johnson, Positive Life adaptation, 2002, pag. 89

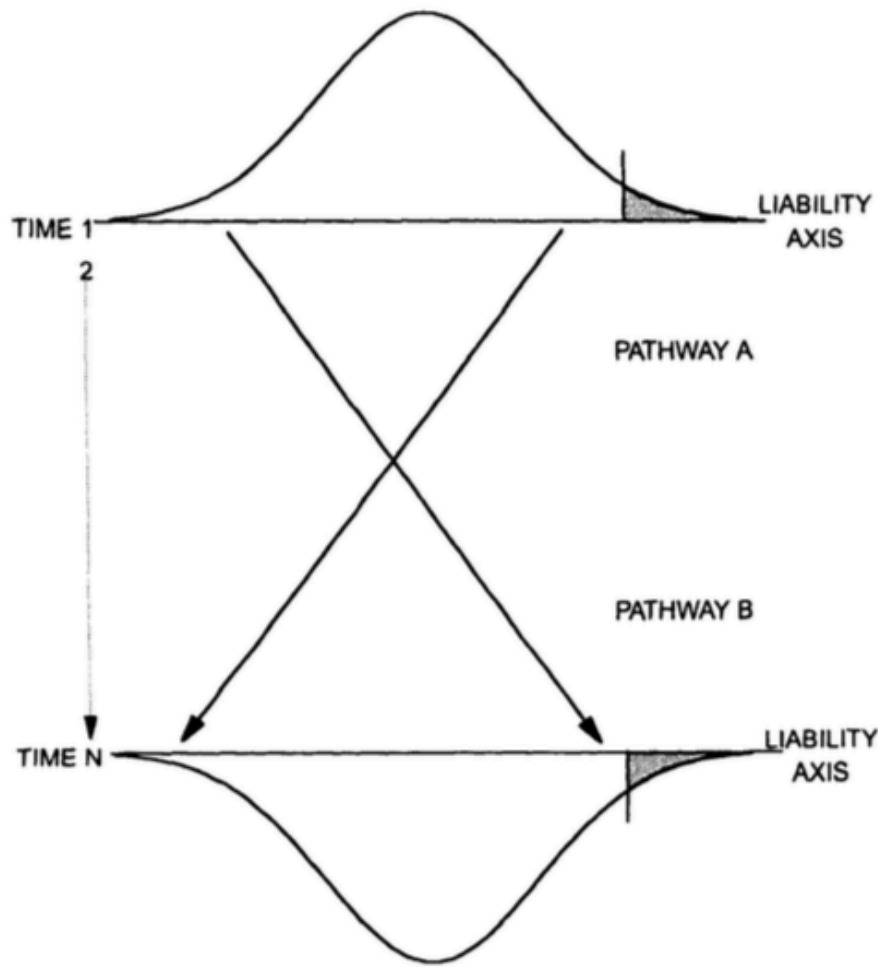
The first observation to point out regards the fact that individual’s characteristics are not the only determinant of the outcome, as the theories about resilience as a childhood given might indicate.

Indeed, two other features are described, which are the common and unique environment. The former refers to aspects that are shared among members of the same family, reference group, community (f.i. socioeconomic status, crime rate in a neighborhood, etc.). The latter refers to aspects of the environment that are unique to the individual (f.i. a particular relationship with another member, recreational environment, classroom, etc.). These three factors and the combination among them results in the liability phenotype, meaning not only the tendency or likelihood to show a certain visible output, but also the combination of the external circumstances that make an individual more or less likely to show it.

As stated in the book, resilience is considered the construct able to explain the positive outcomes when facing adversities and this process is the result of phenotype-environment interactions.

In other words, resilience is used to depict a scenario in which an individual manifests a favorable, positive outcome at time N, having started with an adverse situation, or having experienced adversity, therefore starting with a high liability condition at time 1, as illustrated by pathway A in figure 2.2.

Figure 2.2 *Differential outcomes of resilience based on different initial positions on the liability axes*



Source Glantz & Johnson, Positive Life adaptation, 2002, pag. 94

Let's take the example of children living with alcoholic parents. Their predisposition to alcoholism might result inferior, showing resilience traits and therefore following pathway A, but some others, under the same conditions, might emulate their parents' behavior, therefore negatively responding to an initial situation of distress, determining pathway B.

### **2.3 Measurement of Individual Resilience: The Connor-Davidson Scale**

The large interest that recent and less recent literature gives to resilience, even if it is sometimes seen as a trait and sometimes as a process, is also justified by the fact that

resilience is a characteristic that varies with context, time, gender and cultural origin (Garmezy, 1985; Garmezy and Rutter, 1985; Rutter et al., 1985; Seligman and Csikszentmihalyi, 2000; Werner and Smith, 1992), and that can be measured as a person's level at a certain point in someone's life.

By far, the most widespread method to measure individual resilience is the Connor-Davidson scale (CD scale), developed by Kathryn M. Connor and Jonathan R.T. Davidson in 2003. This scale was created to improve existing measures, like hardiness or perceived stress, with the final aim of creating a validated, simple scale. The interest in resilience rose in the authors when treating men and women patients with post-traumatic stress disorder (PTSD) and the need for a measurement scale became obvious when they figured out that different groups of patients had different reactions to similar situations. Connor and Davidson created the scale by assembling the work of different previous studies on the field, especially from Kobasa (1979), Rutter (1985), Lyons (1991) and from the experience of Sir Ernest Shackleton.

The concept of hardiness as personality style was first introduced by Susanne C. Kobasa in 1979. She studied the behavior of two groups of people that had been exposed to the same level of stressful events in the previous three years, finding that one group reported illness as a consequence of that period, while another one didn't, despite the exposition to stressful events. A higher level of hardiness was measured in the high stress/low illness group, rather than in the other one, concluding that hardiness as a personality characteristic resulted a key factor in the development of post traumatic behaviors and events (Kobasa, 1979).

Hardiness was measured as the combination of three factors, that are commitment, control and challenge, that act when encountering stressful conditions and situations. Commitment was defined as the tendency to be involved into activities, control as the ability to react to external situations, challenge as the belief that change and dynamism, rather than stability and firmness, are the standard situation in life.

The studies of David Rutter were another source of inspiration. One of his main findings is that personal characteristics per se cannot explain resilience, rather the interaction responses and dialogue with the environment (Rutter, 2006); resilience is an adaptation to the environment, given the right resources; basically, it is how a person uses those resources to respond to externalities.

The features introduced in the CD measurement scale were “developing strategy with a clear goal or aim, action orientation, strong self- esteem/confidence, adaptability when coping with change, social problem solving skills, humor in the face of stress, strengthening effect of stress, taking on responsibilities for dealing with stress, secure/stable affectional bonds, and previous experiences of success and achievement” (Connor and Davidson, 2003, page 77).

Other items related to patience and the ability to cope with stress and pain were included from Lyons (1991).

Finally, the 25 items scale was completed with some items coming from a leader’s experience, rather than a scientific publication. It is the case of the chronicles of Sir Ernest Shackleton, recounted in a book written by C. Alexander.

Sir Ernest Shackleton was the commander of the Imperial Trans Antarctic expedition from 1914 to 1917, an attempt to make the first land crossing of the Antarctic region.

Shackleton was able to reach South Georgia with all his 28 men of the crew, overcoming the ice that became prominent after the ship sunk, a shortage of food, a temperature between -28° and -45°, sailing for 1600 kms on a shallop to cross the ocean with only a sextant and a stopwatch, being able to reach the final destination without the loss of any men.

The reason why Connor and Davidson used this chronicle for the realization of some of the items of the scale is that the leader, Sir Ernest Shackleton, was noted to possess many personal characteristics in line with resilience that may have helped in the incredible result achieved. In particular, it was noted that faith and belief were important factors in the positive outcome of the expedition, underlining a “spiritual” component of resilience (Connor and Davidson, 2003).

The CD Scale is a self-rated measure of resilience (Connor and Davidson, 2003) and has been initially tested by the authors on different groups: a general population sample, primary care outpatients, psychiatric outpatients in private practice, subjects with anxiety disorder and subjects with PTSD.

Eventually, the scale has been used in order to test its validity across cultures, like Korean (Jung et al, 2012), Chinese (Ni et al, 2015), German (Sarubin et al, 2015) and Spanish (Notario-Pacheco et al, 2011; Crespo, Fernandez-Lansac and Soberon, 2014).

Since the scale is a self-rated measure, individuals are asked to answer a certain number of questions (25 in the original version, 10 in a simplified one) on a scale, usually from 0

to 4, signaling how much they agree on a certain question or statement. The higher the result, the higher the level of resilience displayed by the individual.

For example, Connor and Davidson (2003) found that the sample of the general population scored higher in resilience (mean = 80.4) than the other samples of individuals with different types of health-related issues. Every individual answer 25 questions, responding on a scale from 0 to 4, and obtains a final score that cannot exceed 100.

In this case, for example, 80.4 represents the mean of the sum of the answers given by individuals in the sample of the general population; that is, a general individual, scores, on average, 80.4 out of 100 in resilience.

One critique to the CD25 has been done by Campbell-Sills and Stein (2007), who, although considering the Connor-Davidson scale the exception in “the lack of well-validated measures of [resilience]” (pag. 1019), have concerns about the factor structure of the CD risk.

Indeed, the authors conducted a sequential approach with three independent samples in order to validate their instrument, making some empirically driven modifications to the original scale.

Campbell-Sills and Stein found out redundancy in the scale, with 13 items that were indicators of a common factor and with four of them that had a strong correlation error. Therefore, they decided to keep only one of the four items, dropping the other three, considering them, indeed, redundant.

The CD10, comprised of 10 items only, was found to be a good estimator of resilience as well with scores on the 10 items scale that were highly correlated with scores on the 25 items scale ( $r = .92$ ).

Therefore, resilience can be reliably assessed with a shorter version of the CD25, with 10 items only.

As a consequence, a CD10 scale has been used in order to measure individual resilience among the leaders of SMEs in my research.

## **2.4 The Resilient Leader**

In my study, the goal is to measure the resilience of a particular type of individual: the leader of small and medium enterprises. The particularity stands in the fact that, as common sense, but also literature suggests, many relationships occur between leader and employees, employees and organization, leader and organization and leader-member exchanges are not infrequent.

The idea that leader's resilience can affect a firm's performance and that organizational resilience, as a mediator, can mitigate the effect, derives from the many findings in literature of links between leadership and organizational outcomes.

Povah (2012) concludes that leaders have a huge role in the success of a firm, but also that some organizations may not fit the culture and style of some leaders; that is, a leader can successfully drive one company, but may also fail with another one.

As already noted, researches, reports and articles on resilience in organizational and business field have been exponentially increased in the last decades, but the interest is not just "a flavor of the month" as Adrian Lock, senior consultant for Roffey Park Institute, leader in academic and research, writes in his 2014 report called "The resilient leader: debunking the myths and growing your capabilities".

Everly (2010) in "Resilient Leadership: Building a workforce culture of resilience" for Resiliency Science Institute clearly states the differences between a resilient and a traditional leader. A traditional leader is a guide for his or her followers and creates this leader-follower relationship. As noted by Bass and Avolio (1993) a leader can decide to adopt either a transactional or transformational style. The former means that he or she creates agreements with the followers, building a rewards-punishments system as a consequence for the tasks completed and the results achieved.

On the contrary, transformational leadership consists in using energy and creativity to build organizational strategy around the needs of others. Transformational leaders possess four characteristics, the so called 4Is: idealized influence, inspirational motivation, intellectual stimulation and individualized consideration.

However, resilient leaders are those that promote resilience into others and that try to build a culture of resilience within the organization, always trying to search for an

opportunity in a crisis or adversity. To do that, the most crucial part is to train first line managers how to be resilient leaders.

Roffey Park institute (RPI) has completed a survey answered by 1079 workers with different roles and levels of seniority that, together with a broad research on different fields including developmental and positive psychology and medicine, ended in a model that comprises five crucial elements that resilient leaders should possess (Lucy et al, 2014). Those five factors are interrelated, meaning that each one influences the others; therefore, they are depicted as five overlapping circles.

The first element depicted in the model is *perspective*. Resilient leaders know that are not events per se to undermine the survival of the firm, rather the way themselves think, respond, act and react to them, their “response-ability”. They also show a positive attitude, focusing on things they can change, rather than on unpredictable events or outcomes they cannot change, they accept and recognize the existence of a crisis or a negative situation and deal with it, instead of denying it. This is indeed coherent with the studies previously cited regarding the positive correlation between optimism and resilience when talking about the “resilient personality” of an individual. Optimist leaders tend to have an internal locus of control, that is the belief that the individual is responsible for the future, rather than external outputs. Therefore, individuals with an internal locus of control are believed to be conscious of their ability and to persist against the obstacles they face.

*Emotional intelligence* regards both altruism and mindfulness. In order to have a strong perspective, leaders have to be emotionally stable in order to evaluate, plan and coordinate all the information, in order to act in the best possible way. Altruistic behavior from an individual may lead to the so called “reciprocal altruism”: Shapiro and Gabbard (1994) describe it as “universal motivation system”, increasing reputation and power and allowing individuals to have access to a higher number of resources in times of stress.

Leaders can regulate their emotions through mindfulness, which has been defined as “the intentional, accepting and non-judgmental focus of one’s attention on the emotions, thoughts and sensations occurring in the present moment” (Zgierska et al, 2009, pag.2). It helps individuals to become more emotionally aware, therefore to better deal with emotions as well as to deal with stress, anxiety and depression, all factors that link up with resilience.



The third element of the model is *Purpose, values and strengths*. The idea is that having a clear picture of goals, motivation and values can increase resilience in a leader. Indeed, values allow individuals to have a sense of morality, to distinguish between right and wrong and therefore they are important when an individual is performing a socially useful work.

Studies found that individuals who believed their job had a deep meaning or that expressed a sense of purpose in performing their job were more resilient than others (Maddi, 1987; Bartone, 1999).

*Connections* is the fourth pillar of the model developed by RPI. Research in psychological field has shown that social support is essential in order to maintain physical and mental health (Pietrzak et al, 2010; Ozbay et al, 2007; Horton and Wallander, 2001) because the role of network and connections is important in providing access to practical, informational and emotional support. Therefore, it is logical to think, as assumed in my model, that firms whose leaders rely on a high number of information sources and connections may have higher level of resilience.

A resilient leader is also good at *Managing physical energy*. A healthy diet, regular physical exercise and good sleep habits improve mood, cognition, mental and physical health. Exercise can contribute to optimism and positive emotions, making it easier to find opportunities when facing difficulties. Also, good sleep and a good diet are positively associated with resilience and better coping with stress.

Rebecca Shambaugh of the Executive Forum, President and CEO of Shambaugh leadership, recalls some secrets and tips that make a resilient leader in a 2010 article.

She believes that a deep sense of awareness, knowing your values and principles and matching your business opportunities with them make you feel more optimistic and better cope with ambiguity, similarly to the “purpose, values and strengths” described above.

Second, a great resilient leader is able to empower his or her team and the individuals that form it by effectively communicating, inspiring people and delivering the right message. In this way, they use the “empowering optimism” to drive value.

Rebecca Shambaugh also stresses the importance of bridges, networks and connections as a way to improve the quality of the work and to produce positive outcomes, similarly to the point highlighted by RPI.

Finally, a resilient leader learns from the past, applies the insights to new situations, is able to anticipate change and decide accordingly. In general, the resilient leader believes a difficult situation, or a disruptive change is a part of life and has the instruments to cope with it.

According to the Resiliency Science Institute report cited above (Everly, 2010) the leadership traits can be summed up in the “Strength and Honor” mantra from the movie “The Gladiator”. The main focus regards the statement that a leader must be evaluated when things are complicated, in times of crises, when resources or time are constrained: it is there that the “authentic leader” emerges.

Having “honor” means being optimistic, confident and, again similarly to the *purpose, values and strengths* characteristics, having a strong morality and ethical reasoning.

Moreover, resilient and authentic leaders possess “strength”, meaning they are able to positively influence, convince and guide others in extremely risky situations.

More deeply, strength can be split into a personality component, which is the level of optimism and positive vision, and a more concrete one, the level of responsibility and action-performance achieved.

Honor is built through moral integrity and open communication.

Based on this theory, Everly and Strouse have created a “Leadership scorecard” based on low/high optimistic, visionary leadership; hesitant/bold decisive action; dishonest/honest score on honesty, integrity, ethical behavior; secretive/open communication.

Robb (2000) focuses on the two characteristics that a resilient firm should have: in order to sustain competitive advantage in the long term, an organization must deliver excellent performance on current goals and effectively adapt and innovate in order to survive and to overcome future instability and shock.

In order to do so, an organization has to possess two subsystems. The first one is defined as the *Performance subsystem*, that ensures that the firm reaches short term goals in terms of financial performance and tasks, being able to survive. The second and complementary subsystem is called *Adaptation subsystem*, and is focused on the long term, generating ideas and innovation in order to adapt and deal with unforeseen future events.

The increasing complexity of events that a firm has to face nowadays, as well as the different number of stakeholders the firm has to satisfy, in terms of financial, organizational or human results, suggests the fact that a Resilient leader has to alternate

different leadership styles depending on the different situation he or she is facing or will possibly face in the immediate or next future.

Indeed, Patel (2010) suggests three diverse types of resilience and consequent leader's behavior: *resilience in reacting to stressful situations*, *resilience in creating stressful situations* and *resilience in chronic stressful situations*.

The first one indicates an adverse event, *una tantum*, that only occurs momentarily. The second one refers to a longer situation of stress coming from, for example, the consequences of an action or decision. As Patel explains, those two situations are only temporary and do not persist over a long-time horizon.

The third and last situation regards dealing with continuous stressful management challenges, indicating long term conditions where a leader has to prove his or her resilience in a persistently stressful or disruptive environment.

#### 2.4.1 Leader-Organization exchanges

As an article from Harvard Business Review (Everly, 2011) states, while the key to surviving and prospering to upcoming events is human resilience, companies can develop a certain "culture of resilience", described as a sort of "psychological immunity" that activates during crisis or when overcoming adversities.

The main idea behind my research is that the leaders of a firm, in particular those of small and medium enterprises, can influence some of the firm's traits and characteristics, like its level of resilience, its expected performance or the level of job satisfaction.

This is not a complete newness if we think that literature has already investigated leader-organization exchanges.

Regarding organizational culture, according to Bass and Avolio (1993), it develops in large part from its leadership, but the level of the culture can also affect the development of the leadership itself, with a "constant interplay between culture and leadership" (pag. 113).

Leadership influences organizational culture through its contribution to enterprise resource planning (Ke and Wei, 2008) and, even though most managers understand the importance of organizational culture, they do not realize their role in shaping it, because even if many subcultures in an organization seem predetermined, managers have direct influence and responsibilities in forming them (Kane-Urrabazo, 2006).

Ogbonna and Harris (2000) investigated the link between leadership and performance, finding that this relationship is mediated by the type of organizational culture adopted. In a study on US Army both transactional and transformational leadership were predictors of performance (Bass et al, 2003), while Wang et al (2011) showed that transformational leadership “had an augmentation effect over transactional leadership in predicting individual-level contextual performance and team-level performance” (pag. 223). Transformational leadership has also been found to positively influence work satisfaction (Ngadiman and Ratmawati, 2013).

With these premises, it seems logical to think that resilient leaders can build resilient organizations. Organizational resilience largely derives from resilient leadership: it appears that a resilient leader can “tip” the organization in increasing its resilience (Everly , 2011 citing Malcom Gladwell’s book, *The Tipping Point*).

Moreover, Ayala and Manzano (2014) found that the resilience of the entrepreneur is positively correlated with the growth of the business.

Bell (2002) indicates leadership as one of the five principles of organizational resilience. Indeed, the first steps for an organization to achieve resilience derive from the enterprise leadership setting the priorities, distributing the resources along the firm and making the commitment to establish organizational resilience. In building a resilient organization, the leader has to find the right balance between risk taking and risk aversion, ensuring the right search for innovation, but also minimizing risks that could undermine the firm’s survival in the long term (Bell, 2002): resilient leadership can be indicated as a mix between transactional and transformational leadership (Dartey-Baah, 2015).

In order to understand how a leader can act to transfer his or her characteristics to the firm, one way can be to think of a model he need to follow or to which is the final goal that the firm wants to reach and the final stakeholder the organization wants to satisfy.

Indeed, Avery and Bergsteiner (2011) challenge the validity of the shareholder-first approach in the creation of value and affirm that the careful consideration of all the stakeholders, with no rank of importance, helps the firm being sustainable and resilient.

There have been many discussions around the former approach; in the last decade, just to cite two, Michael Raynor (2009) has discredited the premises of the theory, while Michael Porter (2011) has encouraged firms to go beyond this theory and to follow a more sustainable approach.

The conclusion is very linear: pressures from various stakeholders make sure the firm behaves in responsible ways from an ethical, environmental and social perspective and this helps the firm in being sustainable and resilient (Hall and Soskice, 2001 as cited in Avery and Bergsteiner, 2011). Indeed, “A resilient system that works well should be more sustainable because it can operate better for longer” (Winnard et al, 2014, pag.5).

According to the model developed by Lloyd Duman (2018), organizational leadership is a combination of adaptive capacity and adaptive governance and the leader of the firm is partially responsible for both. The former “represents the strength and level of an organization’s social network”, the latter “the level of resilience thinking leadership mindset an organization possesses and the amount of capacity building and collaborative decision-making management supports” (both pag. 22).



### 3. CHAPTER THREE

## **Organizational Resilience**

As previously stressed, the importance for organizations to be resilient derives from the fact that the world and the environment will continue to change at an exponential pace in unexpected ways, marking a big shift from a predictable to a discontinuous world (Home and Orr, 1997).

Changes are inevitable and the ability of the firm leads in being able to absorb those changes smoothly; it is not only about adapting, because the health of a firm is represented by how well it has adapted to a certain shock or discontinuity (Home and Orr, 1997).

Temporally, a distinction that deserves attention is the one provided by Winnard et al (2014), which stresses the strategic and operational differences of timely diverse conceptions of resilience.

Even if the distinction line between short and long term resilience is very blurred and it may depend on the different companies, on their time span, their goals and so on, it is important to underline the different qualities and actions required and pursued when focusing on one or another.

The authors propose the definition of *strategic resilience* for long term sustainability and *operational resilience* for short term sustainability.

A firm focusing on strategic resilience can deal with shifts from corporate strategy (Aggerholm et al, 2011) and also enhance collaboration with stakeholders (Lozano, 2008), but is more vulnerable in relation to short period shocks and unexpected events.

On the opposite, firms pursuing operational resilience lack in long term planning, but focus on surviving in the short term and fighting upcoming events.

A firm that does not possess any of these two horizons is destined to fail because highly vulnerable to changes.

Instead, flourishing organizations combine the two aspects together, because this is the only way to minimize all sources of uncertainty and, at the same time, complete both short and long term goals in the unpredictable environment firms are facing.

Literature also distinguishes between crisis management and organizational resilience (Boin and McConnell, 2007; Williams et al, 2017; Zhang and Liu, 2012) and therefore between resilient organizations and firms that just deal with crisis.

Crisis management focuses on the creation of stability with slow pace initiatives (organizational routine) and wants to ensure loss reduction, rather than having as the main goal adaptive capacity and learning from mistakes. Firms can show resilience when they reach a favorable outcome in a highly adverse environment or situation (Zhang and Liu, 2012).

An example might be useful in order to understand the differences between a resilient and a non-resilient organization, or between organization with and without resilient behaviors. This example is explained by Amit Mukherjee in his book “Spider’s strategy: creating networks to avert crisis, create change and really get ahead (2008).

There are three companies involved: Philips NV, the Dutch electronics producer, and Nokia and Ericsson, respectively from Finland and Sweden. In this business case, Philips was the upstream supplier of chips for cell phones and both Nokia and Ericsson were regular customers. On March 17, 2000 an industrial building of Philips caught fire and the company announced a one-week delay to its downstream clients. The two companies reacted and responded very differently.

Nokia immediately set up a task force to understand the details of the issue. When Philips announced that it would have taken several weeks or even months to catch up on the regular scheduled, a team of thirty people coming from around the world was formed: alternative suppliers for three out of five chips were found and additional capacity for the remaining two was claimed to Philips.

The way Ericsson reacted was rather passive. The company assumed the delay would have been only temporary and short and didn't prepare for the unexpected. When Philips communicated that the problem would have been bigger than expected, Ericsson was very slow in reacting; it couldn't rely on alternative suppliers, as Nokia did, and couldn't ask Philips to cover spare capacity because Nokia did it in advance. Ericsson completely missed a “B plan”.

After this episode, the market share of Nokia went from 27% to 30%, while the one of Ericsson dropped from 12% to 9%.

However, the environment is fast, and companies cannot stop to adapt, innovate and transform; indeed, just seven years later that episode, when Nokia was dominating the



cell phones market, the disruptive technology of iPhone started to mean the incredible collapse of the giant Nokia.

This example describes a resilient approach that refers to supply chain, but other major streams of resilience has been identified.

### **3.1 Streams of research: Employees resilience, Process resilience and anticipating disruptions**

As noted by Wishart (2016), there are three broad streams of general business research related to organizational resilience.

The first stream of research regards resilience of *employees*. There is interest in both assessing resilient employees that might be positively correlated with the performance of the firm and in finding employees characteristics that might be related to resilience.

Luthans et al (2007) developed a measure called “psychological capital” (Psycap) that indicates resilience as one of four personal factors, together with self-efficacy, optimism and hope, positively linked to organizational outcomes.

If employees’ resilience is positively linked with performance, it makes sense for human resources to understand and focus on resilient behaviors and to increase HR practices that might enhance those behaviors.

Based on literature review and on their own studies, Bardoel et al (2014) found eight HRM practises that enhance employees resilience: development of social supports at work, work-life balance practices, employee assistance programs, employee development programs, flexible work arrangements, benefits and rewards system, occupational health and safety systems, risk and crisis management systems and diversity management.

The validity of these findings not only apply under stress circumstances, but also during periods of relative calm (Bardoel et al, 2014), meaning that those HRM practices can, in any circumstance, represent an impacting strength over organizational outcomes.

A second stream of research focuses on *business models and processes*, in order to check if, in case of natural disasters, supply chain disruptions, terrorist attacks, industrial accidents and so on, the characteristics of the business model, the way the firm collects inputs to deliver outputs, the type of processes adopted, have a different influence on the recovery of the firm. This particular stream is defined as operational resilience, because

it is focused on operational risks, or on how operations might be affected by external threats, rather than on strategic, legal or financial risks (Stolker et al, 2008). It is important to note that the term “operational”, as used in this context, conceives a different meaning from the same term used by Winnard et al (2014) and described above, that wanted to indicate a temporally, short time period.

This refers to the stream of research connected to the Nokia and Ericsson case, where different processes and practices inside the supply chain determined completely opposite results.

There are lot of studies about supply chain resilience that underline its crucial role (Hohenstein et al, 2015; Pettit, Fixel, Croxton, 2010, 2013; Ponomarov and Holcomb, 2009; Jüttner and Maklan, 2011) and executives identify supply chain risk as the highest threat to their firms (FM Global 2007 as cited from Pettit, Fixel, Croxton, 2010).

Companies that focus on supply chain, looking for ways to prevent the costs and revenue impacts of logistic disruptions are able to react faster to external events and to gain market share more rapidly than competitors, resulting in an average higher 7% of stock performance, according to a World Economic Forum and PwC analysis (2013).

However, in the Council of Competitiveness 2007 a majority of corporate board members were under-informed about the risks of supply chain and 90% of companies did not know if their key suppliers had business continuity plans (Business Continuity Institute 2013). Firms that invest in innovation have been found to result in higher positive outcomes after a distress (Hamel and Valikangas, 2003), as well as decentralization and the empowerment of a larger number of managers able to take key decisions (Hamel and Valikangas, 2003; Alesi, 2008; Somers, 2009).

The idea is that the more knowledge is spread throughout the organization and the more the number of people to have core responsibilities, the quicker the firm can react to adversities and bounce forward.

Moreover, as Avery and Bergsteiner (2011) note, sustainable leadership practices do matter in achieving resilience for the firm.

The third stream of research is described as the one focusing on *anticipating, preventing and responding to disruptions*.

The key for a firm is to understand that resilience is not just about planning for future shocks, it is rather to develop a culture of resilience that allows to overcome adversities with the minimum knock back, always learning to improve the efficacy of the internal system.

It is crucial to develop the right balance between sticking to the plan and improvise in the unknown, with the ability of identifying which actions and reactions are appropriate in the different situations (Williams et al, 2017).

The firm has to develop and internalize preparedness, responsiveness, adaptability and learning abilities in order to increase resilience and crisis management abilities (Koronis and Ponis, 2018). Firms have to possess a sort of “Resilience Capacity”, a combination of cognitive, behavioral and contextual factors that allow a firm to prepare for the unknown, quickly react to events and to overcome criticalities (Lengnick-Hall and Beck, 2005).

Those factors are very important, but for the firm to succeed it is also crucial that, at organizational level, as noted above, a flexible decision-making process with an ability to move resources quickly is included as well (Wishart, 2016).

Firms can improve their resilience capacity by building networks, both internal, meaning the relationships among the group of employees, and external (Van der Vegt et al, 2015). Finally, prior experiences to adversity have been found to improve organizational responses in critical situations, even though the learning from the past experience is not static or linear (Williams et al, 2017).

### **3.2 Resilient Behaviors and characteristics of Resilient Organizations**

According to Home and Orr (1997), rather than resilient organizations per se, there are resilient behaviors that make organizations more or less resilient. The authors of this study point out seven major streams of behaviors that contribute to enhance the resilience of the firm, named separately but surely interconnected.

The first aspect is *Community*. It is important that people inside an organization possess the right values and purposes and has fit with the core values of the firm.

*Competence* describes the balance between possessing the effective skills and knowledge and actually being effective and accountable when situations of high stress occur.

Third is *Connection*: weak relationships inside an organization might reduce the flexibility and capacity of a firm to work under pressure.

*Commitment* makes people work together reinforcing trust and *Communication* makes a good flow of information possible among members.

Finally, *Coordination* regards the timing of operations and changes, while *Consideration* is how the organization, particularly the leader, handles human factor and the relationship between individuals and the job.

Similarly, other streams of literature point out the ability of resilient firms to develop capability endowments in order to deal with crisis (Bonanno et al., 2010; Hobfoll, 1989; Sutcliffe and Vogus, 2003) and Williams et al (2017) divide them into financial, cognitive, behavioral, emotion-regulation and relational capability endowments.

Airline companies that had more financial reserves than their competitors coped better with the 9/11 terrorist attack; cognitive capacities allow a firm to manage its knowledge and apply it to an unknown situation; behavioral capabilities endowments refer to the design, configurations and connections of a firm, also favored by the types of linkages or structures adopted; emotion-regulation and relational capabilities are strictly connected to the more mental and emotional related part of resilience, perfectly coherent with previous research (f.i. RPI study).

Since literature about organization and business resilience is very wide, many studies, theories and models try to frame resilience in different components or building blocks, describing the characteristics that a firm has to possess in order to be defined resilient.

Bell (2002) indicates five principles that identify resilient virtual organizations (RVO). The first one is *leadership*, already described when talking about the exchanges between individual and organization, between leader and firm.

*Culture* is crucial as well: resilient organizations are built on empowerment, trust, purpose and accountability; a group of trusted and empowered employees forms the backbone of the firm and the sense of culture allows the organization to reach objectives.

The third point is *people*: employees must fit with the culture of the organization and, even if there are indications that a collection of resilient people don't necessarily result in a resilient organization as a whole (Hornell and Horr, 1998), properly selected and motivated people contribute to reach the goals of the company. It is argued that, as a consequence, the traditional HR function should evolve into a virtual one, capable of assisting employees regardless of time and space.

*Systems* are the fourth pillar of the RVO. They must be, at the same, time, flexible and interconnected, facilitating everyday operations. A particular focus is given to IT infrastructure, that has to be robust and collaborative, as 46% of management crisis teams reported to have been subjected to a cyber incident in the previous two years (Deloitte,

2018) and with 21% of global leaders perceiving technological change as a top strategic challenge (BSI, 2018).

Finally, the last component described is *settings*, meaning the space and design of the physical components. Indeed, workplace resilience is achieved through the distribution of the workplace into different, dispersed settings, in order to minimize the risk connected to disruptive incidents, also ensuring the right level of safety and security.

Regardless of the type of adversity is facing, a resilient company needs to carry on two aspects contemporary: innovating and adapting to changes and shocks from one side, continuing delivering performance and results from the other (Robb, 2000).

The organization integrates these two aspects in three fundamental elements, building the resilient pyramid described by Robb (2000): from the bottom, culture, skills and architecture.

The *architecture* of the firm needs, from one side, to be efficient and effective in order to continue generating value, creating and delivering business opportunities, timely responding to customers' needs, defining a clear division of responsibilities and boundaries inside the firm (performance system); from the other side, the adaptation system requires to find new solutions to respond to possible or actual changes in the business environment. These may mean changes in strategy, technologies, processes, markets and the strength of the firm is to meet them on time and effectively, ensuring the correct functioning of the firm throughout its daily operations. Examples of these types of architectures might include new business cells, new product teams and process improvements.

A set of certain *skills* is also necessary for organizations possessing a resilient architecture in order to plan and execute at best.

The particularity of these set of skills is that not only they are complementary, but "roughly antithetical to each other" (Robb, 2000, pag. 30). Problem solving, rational and analytical thinking, focus on the specific, task performance form the core of the performance skills; creativity, emotional competency and intuition, focus on the system as a whole, visioning are required for the adaptation side.

The difficulties that derive from the integration of these two aspects certainly underline the criticality of the role of HRM in finding, selecting and forming new hires that have a flexible and open mentality, but also the importance of internal and external communication to align strategies and goals, forming the right *culture* inside the firm.

Firms that see themselves as economic entities only, that attract and manage resources in order to achieve a certain level of performance, result in a conformity-oriented culture that lacks a general overview. Resilient organizations are rather “living communities with an economic/task responsibility” (Robb, 2000, pag. 31): they have a better understanding of the environment and the community they live in, consequently being able to anticipate or predict changes or shifts. Strategies and behaviors are not confined to the economic result but include a broader emphasis on different views and approach, as also stressed above.

### **3.3 Measurement of Organizational Resilience**

Several attempts have been made in order to identify instruments able to measure resilience at organization level. The attempt is complicated because of different reasons. First, the definition of resilience matters. As already investigated, there are different and various definitions of resilience, that express similar concepts, but may change, with a different perspective, the aspects of resilience considered, or their weight and importance according to one author or another.

Second, the debate on whether resilience should be considered a trait or a process changes the measurement that can be adopted. If resilience is considered as a process, or better if we consider the resilience of an organization at time X as the interaction among internal structure and processes, macro and micro variables, following the model of internal traits, common and unique environment proposed by Glantz and Johnson (2002), it might be better to talk about resilient behaviors or resilience potential, meaning the level of resilience that a company showed after a shock or negative situation or the level of resilience a firm is supposed to have or display according to its processes, structure, employees, practices and so on.

Third, the economic environment is very wide, organizations are different among each other, therefore elaborating and validating a scale or measure that provides a complete explanation of the phenomena is not easy. Indeed, it requires an empirical and context-dependent measurement tool (Patriarca et al, 2018).

Somers (2009) investigated resilience potential in the public sector using the model of Mallak (1998). The latter described six factors that are able to measure organizational resilience: goal-directed solution seeking, risk avoidance, critical situational understanding, ability of team members to fill multiple roles, degree of reliance on information sources, access to resources. These 6 factors were translated into questions by Somers, measured either with Likert-type responses or using a summated rating.

This scale was found to be a reliable tool in measuring resilience potential (Somers, 2009) and the questions used were chosen specifically for the possibility to be influenced by managers, in order to see to what extent managers can act on the resilience of the organization.

Stolker et al (2008) acknowledged the issues in correctly measuring resilience in an organization and decided to decompose it into different attributes, measuring performance in relation to certain objectives, that are independent from each other. Every different attribute has a different weight which makes resilience measurable. Finally, the model looks like a value tree with different attributes like internal and external resources, cultural aspects, prevention or strategies that represents small parts, or frames, of the complex objective, that is operational resilience.

Akgun and Keskin (2014) used the theoretical work of Lengnick-Hall C., Beck and Lengnick-Hall M. (2011) to measure resilience, in the attempt of predicting product innovativeness with resilience. They framed resilience in three main components and measure attributes that lead back to those components.

Specifically, they distinguished cognitive resilience (the ability to provide meaning to precedent events), behavioral resilience, more connected to employees, involving the ability of taking actions before events occur or routines that provide quick responses, and contextual resilience, that provides a bridge among firm, employees and environment.

### 3.3.1 The Model of McManus

The work of McManus et al (2008) is interesting under various aspects. The study focuses on New Zealand, where attention on resilience has been increasing and where there has been a six years project focusing on relationships between the resilience of the

communities and of the firms operating in the same area, which constitutes the premises for the work of the authors. This relationship that the authors are investigating has conceptual similarities with my work, because of the way community-organization exchanges are conceived.

Moreover, the research is directed at offering practical instruments for managers to deal with adversities and to effectively improve internal systems, enhancing resilient behaviors.

Additionally, the main components of the model were not derived from a mere theoretical conceptualization of resilience, rather from empirical research and observation in ten case studies of New Zealander firms. Indeed, researchers observed three main barriers in the development of resilience in the organizations studied, that eventually formed the backbone of the model.

The first barrier was a limited awareness of the organization environment, from the stakeholders to the risks connected to the business.

Second, the need to better identify keystone vulnerabilities emerged, together with the problem of dealing with them and solving possible issues.

Finally, the third pillar identified was the ability of organizations, specifically through their culture, to remain flexible and adaptive when facing different situations, underlining the need for adaptive capacity.

Through these observations and a review of the literature, a definition of resilience was proposed by the authors: *“Resilience is a function of an organization’s overall situation awareness, management of keystone vulnerabilities and adaptive capacity in a complex, dynamic and interconnected world”* (McManus et al, 2008, pag.82)

Situation awareness is here defined as “a measure of an organization’s understanding and perception of its entire operating environment” (pag.83). It means having a clear picture of which parties form the organization and which external parties interact with it, together with the way they relate to each other. Many organizations, in this sense, have created scenario exercises performed from both internal and external figures, together with risk identification processes.

Keystone vulnerabilities refers, as the term suggests, to the most important and critical components of an organization, those potentially able to cause destruction, to be catastrophic because of their loss or impairment. These keystone vulnerabilities can be tangible or not and they might differ in the pace at which they are potentially disruptive in case of a crisis. Buildings, critical suppliers, IT system, specialized equipment, but also



patents, knowledge or intangible relationships among members are all susceptible of being critical aspects of a business.

Adaptive capacity refers to the culture and dynamics of a firm that allow to timely respond to crisis in the appropriate way: leadership style, decision making structure, the way information and knowledge are spread can all be elements critical for the sustainability of a firm.

It is defined as “the ability of an enterprise to alter its strategy, operations, management systems, governance structure and decision support capabilities to withstand perturbations and disruptions” (Starr et al, 2004 as cited in McManus et al, 2008).

The authors continuously stress the importance of resilience not as a theoretical framework, but as a practical and integrated approach to be introduced in organizations together with risk management and business continuity planning, under the name of resilience management process. Therefore, it is clear that the firm has to correctly connect all the elements that help addressing resilience in one single, harmonic entity which works toward a common objective.

Another observation it is possible to make is that the three pillars composing the model, situation awareness, management of keystone vulnerabilities and adaptive capacity, do not possess clear boundaries, but they are rather blurred, with some of the elements of one factor that may also concern another factor, that are shared, for instance, between situation awareness and management of keystone vulnerabilities.

In order to build awareness, an organization and the elements that compose it (typically, its employees) have to possess perfect knowledge of the environment where they operate, the resources they can use, the stakeholders they need to satisfy and the possible crisis that the firm might encounter due to its own conditions (f.i. scarcity of a key resource) or to the unpredictability of the external environment (f.i. natural disaster).

As already introduced, it is important that, as part of the resilience management process, firms use consequence scenarios in order to raise internal awareness and to prepare for the unpredictable. “What if” scenarios allow organizations to simulate their behaviors if certain situations happened, involve decision makers by spreading knowledge and awareness and prepare the entire firm by putting them in front of a possible, likely disruptive event.

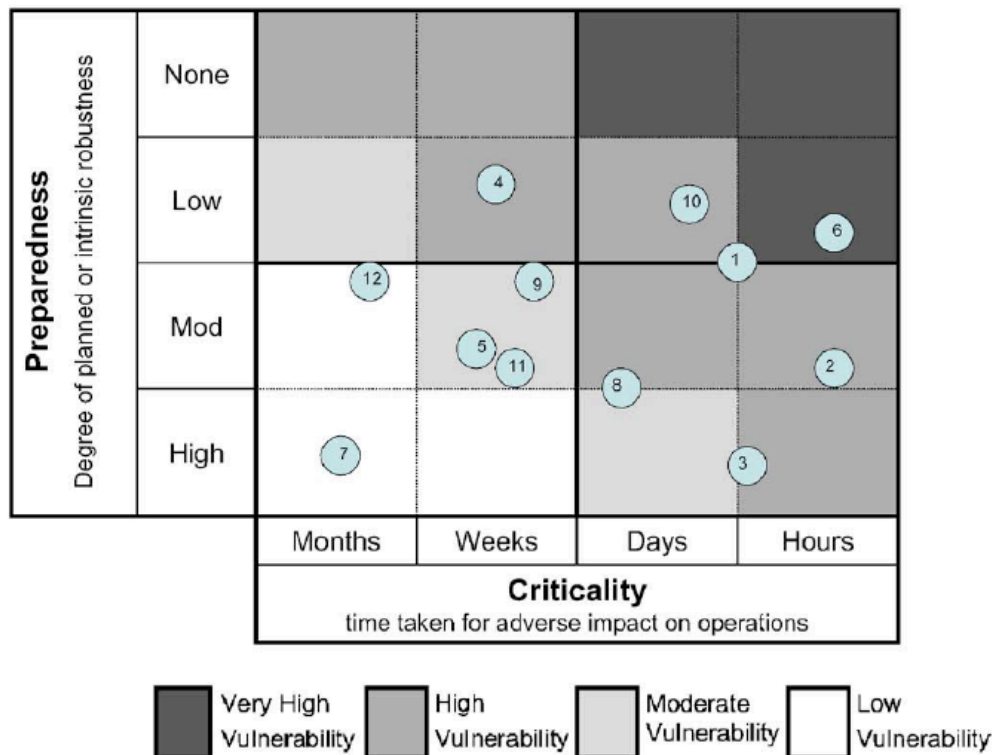
Organizations should prepare consequence scenarios which are different in scope and possible magnitude, as well as scenarios that are specific for the type of business (f.i. a small company selling fruit would not likely simulate a what if situation with a hacking attempt).

The internal and external components that influence or are able to possibly influence the life of the organization should be part of a self-vulnerability assessment, in order to verify if there are any weaknesses where the firm might encounter difficulties.

Then, possible vulnerabilities should be identified and prioritized with the use of a vulnerability matrix, which is very similar to a common risk matrix, as shown in figure 3.1a and 3.1b.

Figure 3.1a *All Hazards Vulnerability Matrix*

(a) *All Hazards Vulnerability Matrix*



Source McManus et al, Facilitated Process for improving Organizational resilience, 2008, pag. 86

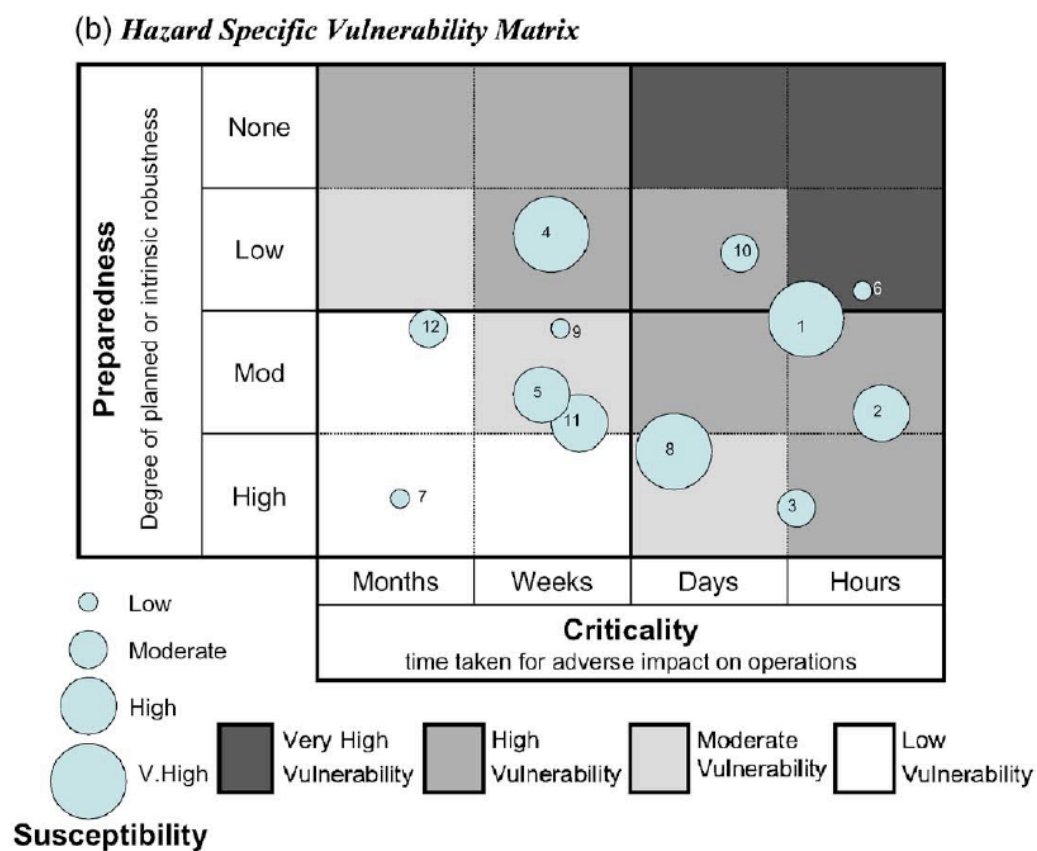
The matrix is divided into different quadrants that represent increasing vulnerability, from low to extreme. Elements that are placed within the highest vulnerability zones are the ones capable of representing a high threat for the survival of the firm.

The matrix is composed of, on the x axis, criticality, expressed as the time taken to show an adverse impact, and on the y axis preparedness, meaning how much a firm is ready to detonate this possible adverse impact.

It is also possible to create a hazard specific vulnerability matrix (figure 3.1b), with the variable susceptibility introduced, with bigger holes representing a very high level of susceptibility.

Finally, adaptive capacity can be increased by conducting very specific what if scenarios, tailored to each organization, checking whether elements like communication or formalization should change.

Figure 3.1b *Hazard Specific Vulnerability Matrix*



Source McManus et al, Facilitated Process for improving Organizational resilience, 2008, pag. 86



## 4. CHAPTER FOUR

### **The Context of Small and Medium Enterprises**

Since my research focuses on Italian firms, with the main establishment in Italy, but also possibly making business within Europe, I will make use of the guidelines of the European Commission in describing small and medium enterprises (SMEs) and in drawing the context where these firms operate and try to build resilience.

The definition provided by the European Commission states that, in order to be considered a SME, a firm has to accomplish two characteristics: employing less than 250 people (staff headcount), having an annual turnover below 50 million euros or having an annual balance sheet not exceeding 43 million euros (firms need to satisfy at least one of these last two features) (User guide to the SME definition, 2016).

However, it is not just a question of size. According to the document, size as well as the access to certain resources has to be limited. Firms that respect the previous parameters but have a more complex structure (f.i. they are owned by or partnered with a larger enterprise) might not have the status of SME.

In particular, inside the category of the SMEs, it is possible to distinguish among micro, small and medium-sized firms. Micro-sized employ a maximum of 10 people, small firms have between 11 and 50 employees and medium employ between 51 and 250 people, and they all have differences in turnover and balance sheet limits.

According to Confcommercio (2009), SMEs in Italy represent 99,9% of the total of the firms spread all over our territory, with 95% of firms being micro, 4,5% small and only 0,5% employing more than 50 people.

Small and medium enterprises are the engine of European economy (User guide to the SME definition, 2016) as well as of the Italian one, with SMEs employing more than 80% of the total Italian workers and generating the vast majority of the added value (Confcommercio, 2009).

In Europe, nine out of ten firms are a SME and they generate two jobs out of three (User guide to the SME definition, 2016).

The European Commission poses a great importance on small and medium enterprises and stresses the criticality to have an equal definition across Europe so that firms of the

similar size and resources can benefit of the same concessions and measures from European Union.

Indeed, a lack of a common and clear definition of SMEs might lead a firm in one-member state to be eligible for aid, while a similar company in another state might not. This would create inconsistency and imbalance in the effectiveness of European policies.

#### **4.1 SMEs, Big Companies and Resilience**

The particular interest and importance that the EU grants over SMEs also derives from the fact that, since they provide the vast majority of employment and richness, they need special treatment and help because of some conditions of disadvantages they structurally face, as opposed to big enterprises.

The first one is market failures. When a SME approaches the market, life is certainly harder than for their bigger cousins. Regulations might be unsustainable to comply because of lack of resources; for the same reason, investing in R&D, therefore promoting innovation in products and processes might not become a priority. Moreover, probably the biggest market failure registers in finance. When approaching the market to require funds, it is more complicated for SMEs to attract capital, especially venture capital (Institute for Family Business, 2018).

Second, lack of management and technical skills as well as a limited knowledge of opportunities, for example of international expansion, represent technical barriers that are difficult to overcome (Sullivan-Taylor and Branicki, 2011).

They are also more vulnerable and susceptible to competition from their bigger rivals and not only they need to face traditional competitors, but also overseas firms that may benefit of advantages in terms of economic or political advantageous conditions (Gunasekaran et al, 2011). It is also true that, if before the economic crisis of 2008 SMEs in Europe could benefit of stable and solid market conditions, now they need to face stagnating markets and economies that look like a roller coaster (North and Varvakis, 2016), rather than a pendulum that returns to a stable condition.

However, even though SMEs suffer their bigger counterparts, especially related to economic and financial issues, they also have advantages, for example in terms of flexibility and adaptation to changes against big, bureaucratic firms (Gunasekaran et al, 2011).

It is also argued by Bhamra et al (2011) that, although limited resources make them more vulnerable in the face of adverse conditions and environment changes, SMEs have a higher ability to influence their own performance and survival. In addition, they might develop more resilient characteristics in order to better cope with the disadvantage of the restrictive credit market conditions.

Gunasekaran et al (2011) also underlines the importance of SMEs for the entire economy and even for the survival of big enterprises. Indeed, many small and medium enterprises are suitable suppliers for large scale companies that need to be selected to maintain competitiveness.

On the other side, if SMEs do not integrate into the global value chain and do not perform supply chain functions effectively, they will face higher and higher barriers to entry in these value chains (Jorgensen and Knudsen, 2006).

Customers' expectations and firms competition have been rising during the last decades due to growing globalization and ease of transportation and, in order to survive, small and medium enterprises have not only to rely on their flexibility and strategies, but it is critical to form relationships and synergies with other SMEs and institutions (Gunasekaran et al, 2011).

Traditionally, small firms are leaders in the time to market or responsiveness, as well as in the quality of the product and innovation, but they lack structure and organization in finance, marketing or in generating capital (Gunasekaran et al, 2011).

Wishart (2016) defines two main streams of research connected to resilience in SMEs.

The first one, with the highest interest, seeks to find characteristics and capabilities that small and medium businesses usually possess and that may be linked with resilience.

Weick and Sutcliffe (2001), as cited in Wishart (2016), conducted an empirical study finding that, out of four characteristics that make a company resilient - resourcefulness, technical, organizational and rapidity - SMEs only excelled in the last one, lacking the others. As already noted above, flexibility and a certain speed in taking decisions are factors that mark small and medium firms, but this might reflect in planning preparedness and future uncertainty.

As also Herbane (2010) observes, SMEs tend to invest resources in everyday operations and, since they are constrained, they generally fight in a crisis situation, rather than planning and preparing for it, saving monetary resources and time.

However, investing in planning and prevention would increase their resilience properties when facing shocks (Herbane, 2010; Battisti and Deakins, 2017).

Financially, it is important to understand whether the position of a SME can influence its level of resilience. Noted the difficulties for small businesses to raise money and to find investors, the ability to have access to credit does matter in better coping with adversities (Lee et al, 2015), while also McGuinness and Hogan (2016) consider the financial position as being more important than the size or the age of a company.

Interestingly, it has been noted that internationalization may favor resilience in terms of scope and speed, also positively impacting performance (Hilmersson, 2014), probably because of the diverse experiences gained in foreign markets, concluding that SMEs should be encouraged to internationalize, despite their resource constrained position.

Attentive leadership can also enhance organizational resilience and the connection between the resilience of the leader and of the SME is the second stream of research on which literature is focalized.

As already noted, small and medium businesses have many differences with big firms, and one of these is represented by the figure of the leader, that may be able to influence organizational culture and characteristics stronger than in a big firm, due to the special conditions of a SME. If the leader operates under a strong commitment, either ideological or based on the fit between his or her identity and the organization, he or she can directly contribute to foster organizational resilience (Powell and Baker, 2014).

Flexibility and adaptability are key components to be adopted by the leader in order to overcome crisis and difficulties, because they allow to implement a different set of strategies depending on the type of situation (Smallbone et al, 2012).

Focusing on entrepreneur, studies have demonstrated that individual resilience predicts entrepreneurial success (Fisher et al, 2016; Ayala and Manzano, 2014).

Thus, resilience is an important quality for an entrepreneur (Sutcliffe and Vogus, 2003) because entrepreneurs that display higher resilience have the ability to survive over time by innovating and to adjust responding to environmental changes (Reinmoeller and Van Baardwijk, 2005) and because entrepreneurs with higher resilience have higher success than others (Stoltz, 2000).

Entrepreneurs are, on average, more resilient than the normal population (Fisher et al, 2016), suggesting that resilient leaders are more inclined towards entrepreneurial career (Bernard and Barbosa, 2016). Following this path, De Vries and Shields (2006) indicate flexibility, motivation, perseverance and optimism as behavioral patterns that are generally present in entrepreneurs and that tend to increase business resilience.



Gunasekaran et al (2011) propose a framework in order to understand how SMEs combine internal and external factors by using particular enabling factors, determining their competitiveness also opposed to big enterprises.

First of all, the *organizational behavior* is very simple if compared to the one of a big firm. As already noted, one of the key advantages of SMEs is their flexibility and agility in the market, with the limited number of employees that reduces bureaucracy and connections and with the decision making which is usually centralized and the relationships among members informal and more personal than in large corporations.

The quality of the operations matters in defining the resilience and competitiveness of the business. In particular, total quality management (TQM) should be adopted and adapted to SMEs according to their size, resources and characteristics.

*Managerial characteristics* complete the spectrum of internal factors examined and need to be aligned to organizational behavior and to the characteristics of SMEs. Managers usually perform more than one job, being multitasking.

The enabling factors described are the use of technology, the generation of capital, the supply chain integration and the location & marketing.

Regarding the *use of technology*, it is argued that SMEs should recognize its advantages and barriers, but its adoption generally derives from external pressure, rather than as a consequence of internal perceived benefits. Among the advantages of the use of technology signaled by Hoyer et al (2006), there are higher customer satisfaction, more efficient processes and improved supply chain integration.

*Generation of capital* is a key topic due to the possible problems that SMEs can encounter due to their size and scope. Raising money can be hard, thus governments and banks should incentivize the landing process of money to favor the development of small and medium businesses.

*Supply chain*, representing the totality of the processes a firm encounters in making a product or a service, should be integrated with the IT, aspect that still lacks to many SMEs, due to insufficient capabilities or experience.

*Location and marketing* deeply influence the competitiveness of a business. In particular, SMEs usually set their businesses in proximity to key suppliers and financing sources, since they are mainly dependent on the local community. It is pointed out by Hollenstein (2005) that when SMEs internationalize, they choose contractual based options (direct or indirect export, franchising, etc.) rather than an equity based one (greenfield venture, acquisitions, etc.).

*Globalization* is the most impacting external factor for small and medium enterprises. If, from one side, it has offered enormous opportunities and business options, with technology being a key factor in order to handle the higher complexity, it has exponentially increased competition as well, with SMEs that struggle to manage their limited resources to serve a potentially infinite range of clients, against big enterprises that, due to their experience, resources and capabilities have enormous advantages.

## **4.2 Family Businesses**

A particular type of SMEs is Family Businesses, which represent 85% of the firms in Italy (source: AIDAF). Of course, there is also the case of big firms owned by families, but this is certainly the exception. An accepted definition indicates family business as a firm where ownership or control are in the hands of the family, that has enough power to determine the composition of the Board of directors (BOD), with the intent of continuing the family business tradition across generations (Miller and Le Breton Miller, 2003).

According to Amann and Jaussaud (2012) family businesses perform better than non-family businesses, with family and social support positively associated with resilience (Paton and Johnston, 2001). According to Danes et al (2009), the reasons of this higher level of resilience need to be found in the different integrity of families, both functional and structural, that creates a sense of trust and openness within the family able to increase effective communication, and in the better ability of families to adjust after disruptions. This particular bond that can rise inside a family might be the reason of their higher rate of success despite disasters (Hammond, 2003).

Let's now investigate the possible causes and explanations of the better performances of family businesses, also in financial terms, as explained by Danes et al (2009).

The first hypothesis the authors do concerns the *agency theory*, which regards the relationship between principals and agents. Family businesses reduce agency costs by minimizing the separation between ownership and control, thus reducing the incentives of moral hazard and adverse selection.

Another theory suggested to explain the phenomena is the *stewardship theory*: leaders and executives have high aspirations for their job, they do not simply act as a normal employee would, rather they act with altruism, resulting in benefits for the organization

as a whole (Miller and Le Breton Miller, 2006). Miller and Le Breton Miller (2009) argue that stewardship theory can lead to three different behaviors. If family members are keen on ensuring the continuity of the business, they will invest monetary and non-monetary resources so that the firm can be long lasting. Alternatively, the stewardship behavior can reflect in transmitting to the employees the motivation and values that is characteristic of the family. Third, family can strengthen its connections with customers, therefore increasing the longevity of the firm.

In general, family shareholders have a long-term perspective that result in better performance.

In terms of financial structure, it is argued that markets pose less pressures on family businesses with the consequence that family businesses can take a broader look to planning and preparing for the future (Stein, 1988) and that they are less inclined to debt, therefore reducing risk (Amann and Jaussaud, 2012).

Moreover, Amann and Jaussaud (2012) studied resilience of family against non-family business in the Japanese context, which has a long tradition of family businesses.

In their findings, they confirm a better performance, on average, with respect to non-family businesses, explained by two main reasons. First, as already noted, the long-term orientation that allows the firms to better plan for the unknown, to bounce forward rather than just bounce back. Second, a quality defined as “familiness”, described as intrinsic and unique characteristics attributable to the family’s involvement in the business, which result in fighting against adversities without behavioral regression (Pearson et al, 2008). Another important result described is the ability of family businesses to better mobilize resources in the period between a crisis and a recovery, as well as their propensity to change their financial behavior during the crisis in order to achieve a better risk diversification, showing flexibility and with the consequent ability of returning to the preferred financial behavior in more stable times. Therefore, family businesses show flexibility and adaptation in temporary changing their vision or goals to favor their own survival.



## 5. CHAPTER FIVE

### **The Empirical Model**

#### **5.1 The JPMorgan Research**

The empirical model that I will present in this chapter and that I have built in order to measure the relationship between individual resilience and the performance of the firm, analyzing the mediator effect of organizational resilience, uses the data elaborated from a European study on small and medium enterprises resilience, supported by the JPMorgan Chase foundation.

The study, conducted by the University of Padova in collaboration with the Warwick Business School, the Aston University (London), The University of Nice (France), the University of Bonn (Germany) and the IE of Madrid (Spain), is investigating the challenges, with the potential opportunities involved, that business leaders of underrepresented groups face in their business activities.

The aim of the research is to understand how these challenges vary across different groups of business leaders in different countries and in different contexts, in order to provide practical intervention and suggestions for the survival of the business in critical situations. The research is purposefully created for business leaders of small and medium enterprises. Indeed, because of the critical importance SMEs have in the European economic and social fabric, since they represent the 99% of the totality of the firms and employ around 70% of the population (source Eurostat), understanding the major criticalities and providing concrete solutions to overcome adversities is vital for the European Union itself.

The main idea behind this research is that the creation of resilient enterprises might be harder for entrepreneurs and leaders with a business located in a disadvantaged environment, like the suburb of a big city, that usually displays higher criminal and unemployment rates if compared with the city center. Again, very young or very old, ethnic or female entrepreneurs might encounter particular challenges and react in different ways than other business leaders in more advantageous conditions: eventually,

they might display innovative and effective solutions that help him or her to overcome the challenge and to reinforce the whole organization.

## **5.2 Method: Data Collection and Sample**

The survey was launched in 2017 across five European economies (UK, Germany, France, Spain, Italy) with the focus in key cities for their economies (London, Frankfurt, Paris, Madrid, Milan).

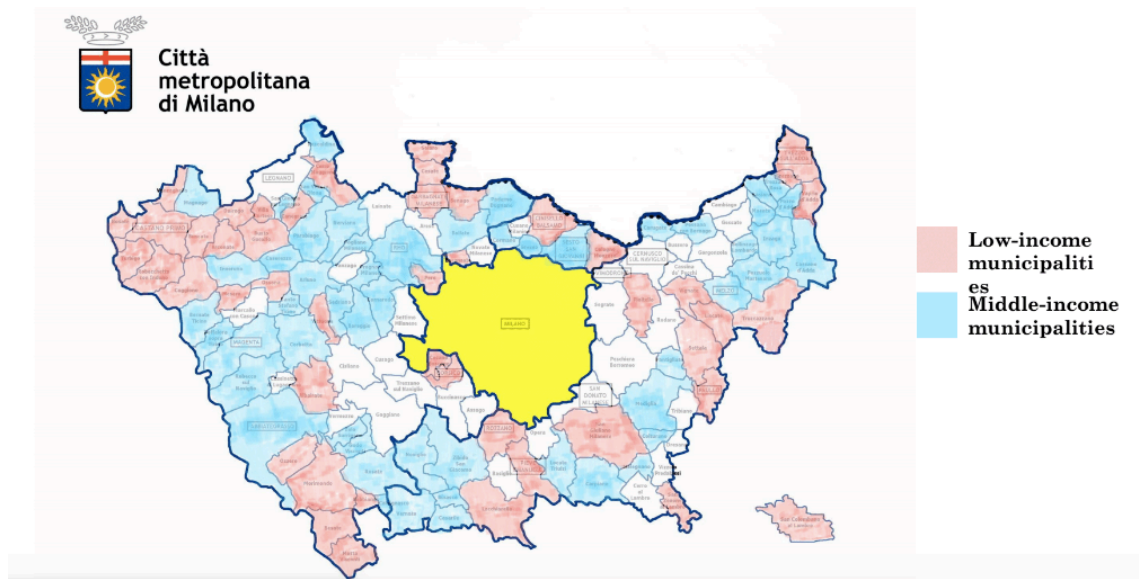
Phone interviews were conducted with the leader (or with one of the leaders, in case there were more than one) of the small or medium firm.

600 interviews were conducted and completed, thus achieving a sample of 600 leaders and firms.

Since the focus of the study was on small and medium enterprises and on business leaders in disadvantageous conditions, a precise research design was chosen.

The target companies to be interviewed were companies employing between 3 and 99 people in the metropolitan area of Milan. The area consists of 3.242.000 inhabitants living in 133 different cities. Three areas have been individuated according to the average per capita income of the cities and these are shown in figure 5.1. 47 cities with an average per capita income lower than 23.499€ have been categorized as “low income” (pink), while 53 cities have been indicated as “middle income” with an average per capita income between 23.500€ and 24.999€ (light blue). The other 36 municipalities (white) have not been considered because their average income was higher than 24.999€.

Figure 5.1 Map of the Milan metropolitan area according to the average per capita income

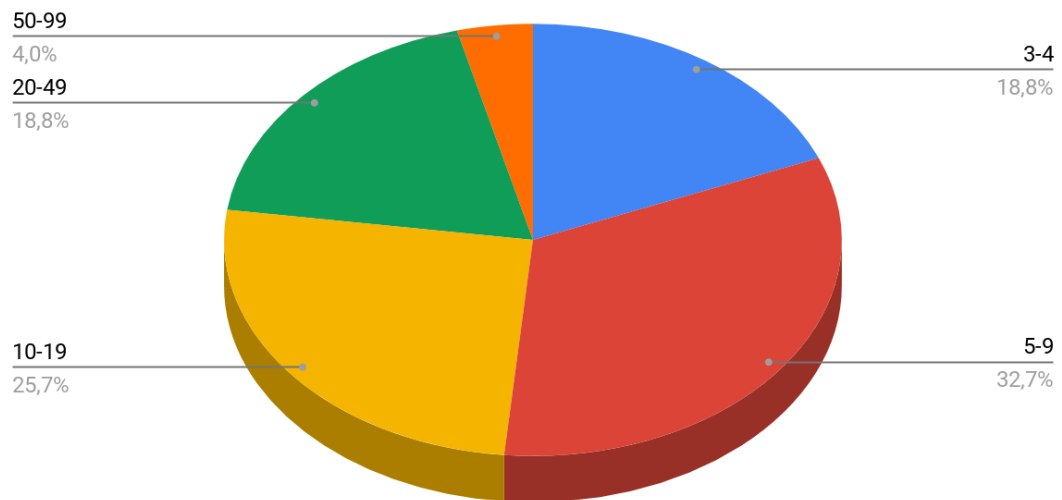


Source: report of the project

Even if the study was conducted on 600 business leaders, for my project some observations have been removed from the sample because of missing values, determining a final sample for my research of 481 business leaders ( $n=481$ ).

The majority of the firms interviewed are micro firms employing between 5 and 9 employees (33%), followed by 26% of firms with 10 to 19 employees. Only 17 firms (4%) employ between 50 and 99 people. Graph 5.1 depicts the whole demographic.

Graph. 5.1 *Business size of the firms surveyed per number of employees, n=481*



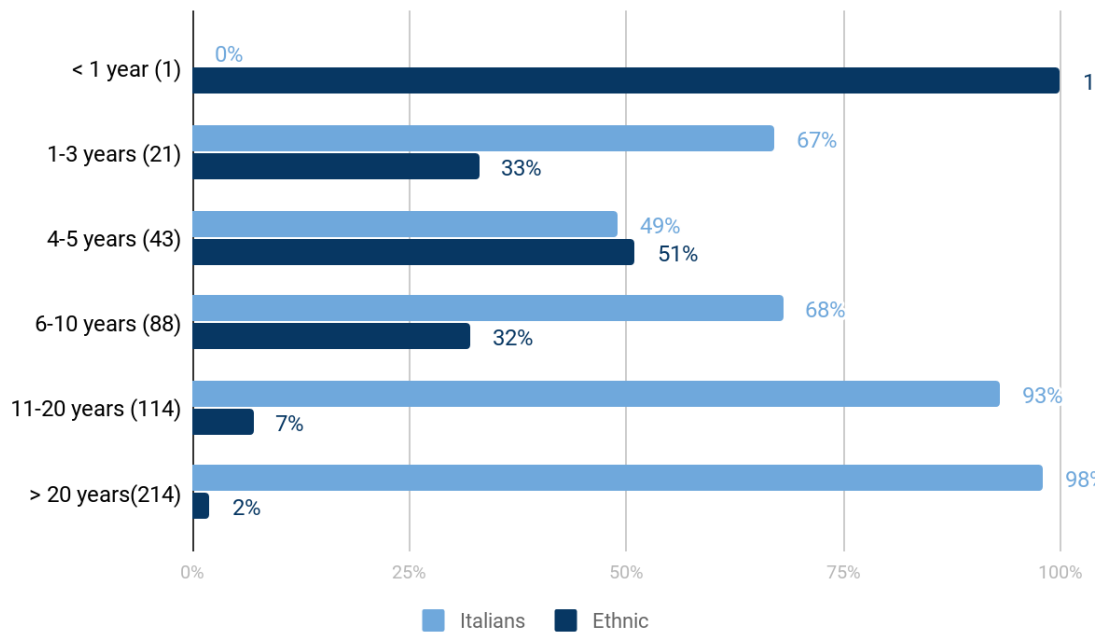
Source: Own elaboration of questionnaire data

Among the business leaders, 232 are female (48%) and 249 males (52%); 70 are migrant or ethnic entrepreneurs (15%), while the majority (411, 85%) are Italians. The majority of individuals are between 45 and 54 years old (30%), followed by 55-64 years old (24%) and 25-44 (23%).

There are no gender differences regarding the age of the SMEs, but Italian entrepreneurs are the ones leading the oldest firms (graph. 5.2).



Graph 5.2 *Business age by Ethnicity, n=481*



Source: own elaboration of questionnaire results

The education level is distributed as follows: 58% of the leaders have completed high school or an equivalent school, with 30% that has graduated either with a bachelor (14%) or a master or PhD (16%). 49 leaders (10%) possess a professional school diploma and the remaining 2% has either a different type of diploma or no education at all.

Regarding the types of industry surveyed, a vast majority is classified as manufacturing (38%), followed by wholesale activities (19%), construction businesses (11%) and accommodation and food services (8%). It is interesting to note that these four most represented business categories account for the 76% of the total.

The industry categories of the sample are not influenced by neither the type of municipality nor the gender of the business leader. Indeed, there are no big differences in how industry types are distributed among them.

However, the classification of industry by ethnicity differs. For instance, manufacturing, construction and communication businesses are strongly dominated by non-ethnic business leaders, while ethnic leaders mainly lead accommodation and food services activities, because of the big presence of ethnic restaurants in the Milan metropolitan area.

73% (349) of the firms of the sample are family businesses, meaning that the majority of the ownership belongs to members of the same family.



N.D. 7 1,5%

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FAMILY BUSINESS			NETWORK		
No	132	27,4%	No	297	61,7%
Yes	349	72,6%	Yes	184	38,3%

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EDUCATION LEVEL			BUSINESS SIZE		
PhD/Master	77	16,0%	3-4 people	91	18,9%
Bachelor Degree	68	14,1%	5-9 people	159	33,1%
High school diploma	278	57,8%	10-19 people	124	25,8%
Professional school	49	10,2%	20-49 people	90	18,7%
Other qualification	3	0,6%	50-99 people	17	3,5%
No qualification	6	1,2%			

Source: own elaboration

### 5.3 The development of the Model

My research aims at understanding and investigating the role of the business leader inside small and medium enterprises, whether he or she is able to influence some characteristics or outcomes of the organization. According to Keong and Mei (2010) it is reasonable to think that SMEs feature the resilient characteristics of their leaders due to their size and

particularities; in their literature review, Korber and McNaughton (2017) underline that there are authors focusing on entrepreneurs that implicitly assume that individual resilience fosters organizational resilience (Bowey and Easton, 2007; Danes, 2013).

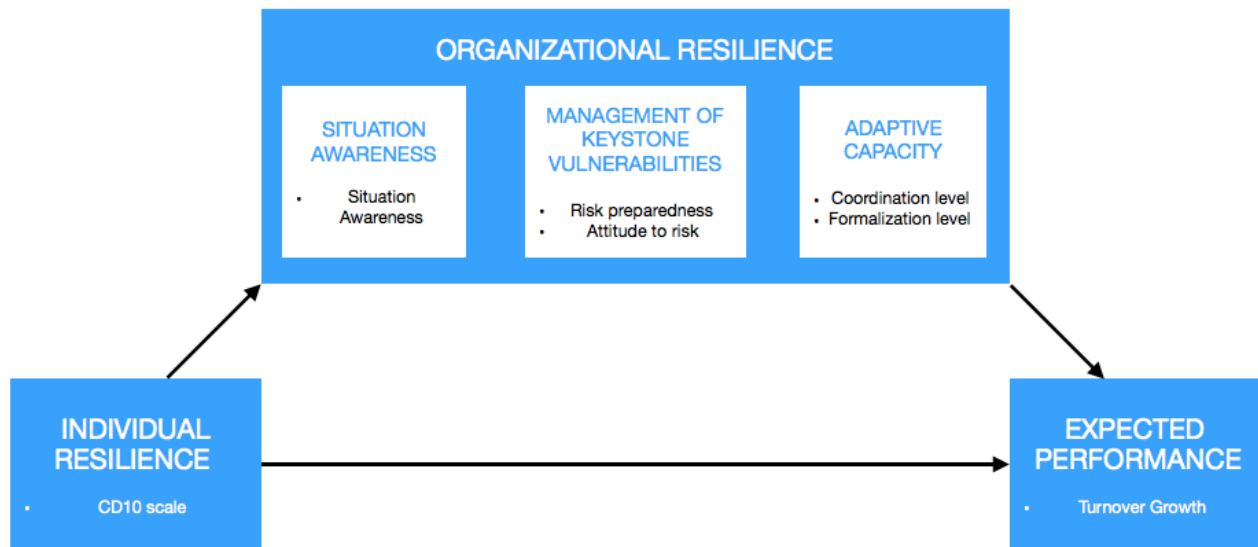
Other findings suggest that entrepreneurial resilience predicts the level of success of the business (Ayala and Manzano, 2014).

Bhamra et al (2015) and Gunasekaran et al (2011) believe the relationship between the leader and the organization should be better investigated in order to understand if the human characteristics of the former can influence, and to what degree, the resilience of the SME as a whole.

Indeed, there is little research on how resilience at individual level and at organizational level are linked (Linnenluecke, 2017; Wishart, 2016), thus determining what can be done to potentially improve resilience.

The goal of my research is to discover whether the individual resilience of the leader of a SME is correlated with the performance of the business and whether organizational resilience acts as a mediator in this relationship, modifying the direct effect of individual resilience. The conceptual model of my research is shown in figure 5.2.

Figure 5.2 *Theoretical Model*



Source: own elaboration

### 5.3.1 Individual Resilience

In order to measure individual resilience, as already stated, the most widespread method is the Connor-Davidson scale, that is “an exception in the lack of well validated measures of [resilience]” (Campbell-Sills and Stein, 2007, pag. 1019).

In the questionnaire, SMEs leaders were asked to answer 10 questions on how they handle difficult situations. The possible answers were “it is not true at all”, “it is mostly false”, “neither true nor false”, “it is sometimes true” and “it is always true”.

Each of these statements is assigned to a determined score. In the questionnaire, the score goes from 1 (“it is not true at all”) to 5 (“it is always true”). However, in the Connor-Davidson resilience scale manual, there are precise indications that each item “is scored from 0 to 4” and that [the authors] “do not recommend any other methods, [like] the adoption of a 1-5 scoring range for each item” (both pag. 6).

Therefore, I have preferred to convert the score from a 1 to 5 scale to a 0 to 4 scale, with 0 standing for “it is not true at all” and 4 for “it is always true”.

By doing that, the scores of the business leaders resulting from my research are universal and can be compared with other samples obtained using the same scale.

The score for the individual resilience is obtained summing all the scores from the ten questions, that can range from 0 to 4.

Consequently, all the respondents that completed the CD10 obtained a score from 0 to 40 that indeed reflects the value of their individual resilience at the time they completed the survey.

However, there were some missing values when collecting the data, as already anticipated in the data collection and sample chapter. Some respondents answered “I don’t know” and some others “I refuse to answer” to some of the questions. The latter answers were considered inadmissible and therefore these observations were not considered in the definition of the final sample.

The former answers were treated differently, according to the number of missing answers business leaders gave.

If business leaders had a maximum of 3 blank answers, the missing values were replaced with the mean of the sample of that answer (mean replacement technique).

If they did not answer 4 or more questions, these observations were eliminated from the sample. Indeed, it was considered that including them could have biased the research.

### 5.3.2 Organizational Resilience

Because of the numerous connotations and application fields of the concept, there is little consensus among literature in a unique definition of resilience and, as a consequence, in the measurement of the construct (Luthar et al, 2000).

As already mentioned, in this research I make use of the model developed by McManus et al (2008) in order to measure organizational resilience. As also Lee et al (2008) underline, the work of McManus is not merely theoretical, rather it consists in a 10 case studies structured interviews whose results were eventually translated into the model. Moreover, a 6 years study about resilient organizations in New Zealand had been previously conducted and the results of this study were the base to build the qualitative interviews of the 10 case studies (McManus et al, 2008), providing important insights for the final model.

These case studies gave empirical evidence that there were three main barriers to the development of resilience in the organizations studied; as a consequence, these three constitute the pillars of the model.

First, there was a “limited awareness of the organization’s entire operating environment”, like the “pure understanding of the range of hazard types and their consequences” (McManus et al, 2008, both pag. 82). According to McManus et al, then, situation awareness is defined “as a measure of an organization’s understanding and perception of its entire operating environment. This includes the ability to look forward to opportunities as well as potential crises and the ability to identify crises and their consequences accurately” (McManus et al, 2008, pag. 83).

Second, “there was a need to better identify and manage the principal of keystone vulnerabilities” and finally, as the third issue, “the culture of the organizations and their ability to remain flexible and adaptable” (McManus et al, 2008, both pag. 82), measured from the way the culture and characteristics of the organization allow it to take the right decisions in time, shaping its “strategies, operations, management system, governance structure, and decision support capabilities” (Starr et al, 2003, pag 30) to adapt to crises and overcome them (McManus et al, 2008).

Therefore, in my model I use 5 variables in order to measure organizational resilience, that I believe are the best ones to describe, with the data in my possess, the three pillars. I use situation awareness for the first pillar, risk preparedness and attitude to risk for management of keystone vulnerabilities, coordination and formalization level for adaptive capacity.

I will better describe these variables in the following paragraphs.

### 5.3.3 Expected Performance

The dependent variable of the model consists of one measure of the expected performance of the firm. The belief that resilience can positively influence the performance of the firm is investigated by some studies (McCann et al, 2009; Mallak, 2016) that seem to confirm this hypothesis.

An important thing is to assure that the performance measure taken into consideration is timely consequent if compared to the resilience measures. Indeed, since individual and organizational resilience are measured at the moment of the interview, performance has to be measured after that moment, to assure that it can be a consequence of the resilience measures previously assessed.

For this reason, every measure concerning punctual turnover, like the difference in turnover between year  $t+1$  and  $t$ , or the actual turnover at the time of the interview, has not been considered, since the types of data in my possess did not guarantee a time consequent measurement.

Therefore, I have decided to use, as performance index, the expected growth of the turnover in the following year, according to the business leader's opinion, expressed in whether they believed the total turnover of the company would increase, decrease or remain the same in the following year.

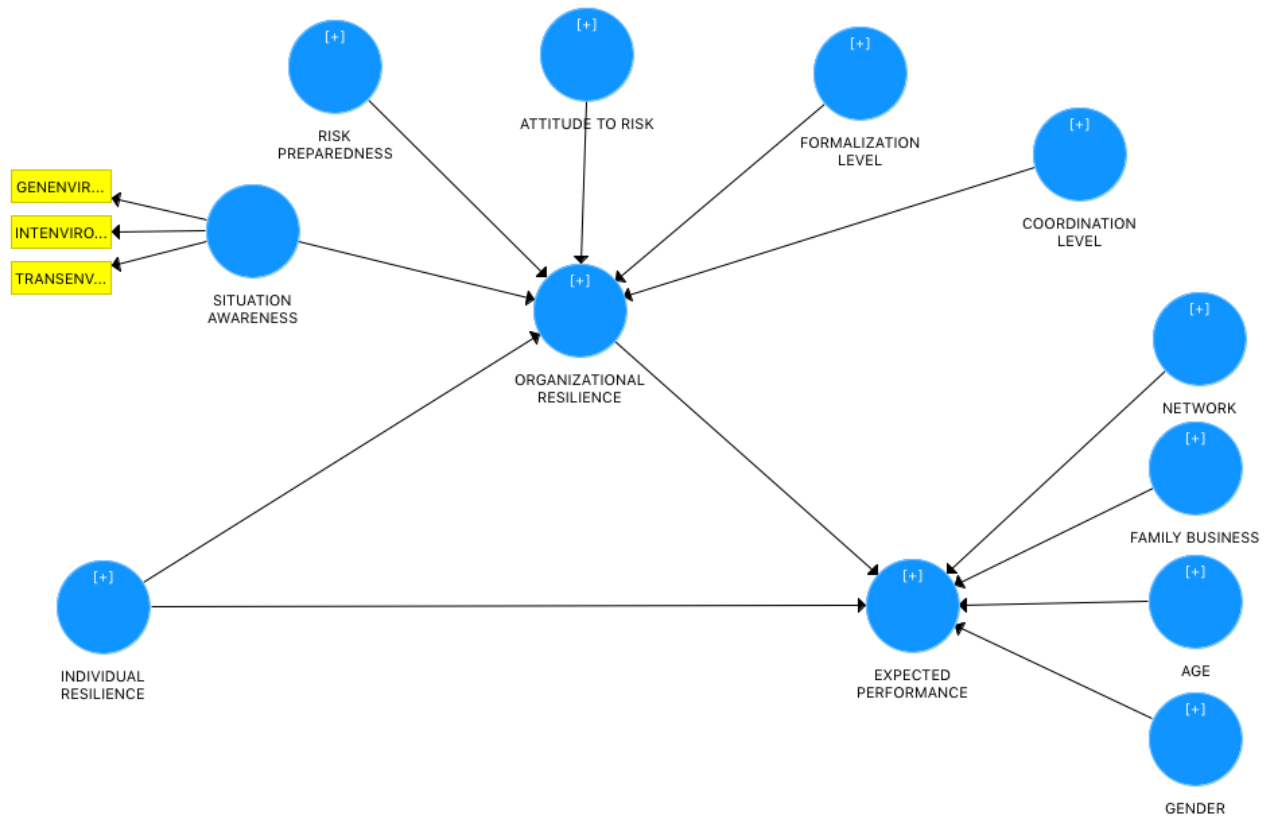
## **5.4 Measures**

This paragraph wants to clarify the measures used in the model to estimate the variables included in my research.

Figure 5.3 shows the final model obtained using the statistical software Smart PLS. The blue circles represent the variables, while the yellow rectangles are the indicators forming the variables. The arrows underline the relationships among the variables.



Figure 5.3 Statistical Model using Smart PLS



Source: own elaboration through Smart PLS

#### 5.4.1 Individual Resilience

Individual resilience has been measured by using the Connor-Davidson resilience scale, comprised of 10 items (CD 10). This is an exogenous variable of the model, meaning that it is a variable that assumes certain values independently from the general equilibrium of the model itself. The variable is represented by the sum of the ten answers given by each observation included in the final sample (n=481), each of them varying from 0 to 4. Therefore, the possible minimum score is 0 and the maximum score is 40. In my sample, the minimum is 2 and the maximum is 40, with a mean of 31.58 (S.D. 5.33). The higher the score, the higher the level of resilience displayed by the individual.

#### 5.4.2 Organizational Resilience

*Situation Awareness.* In McManus et al (2008), it is defined as “a measure of an organization’s understanding and perception of its entire operating environment” (pag. 83). Therefore, in order to measure this indicator, I have decided to measure the perception of the business leader regarding different kinds of risks in relation to a possible crisis situation. Business leaders had to express, from 1 to 5, how much they believed a certain challenge would represent a risk for his or her business.

The higher the score, the higher the situation awareness of the business. Indeed, executives’ perceptions influence the actions of the organization, because leaders interpret information coming from the environment and they formulate plans and initiatives as a response to those processed information (Chattopadhyay et al, 2001). Crises in companies are many times preceded by symptoms that the management needs to be aware of. As a consequence, the acknowledgement and analysis of these risks might reduce possible future crises.

Identifying threats is a key objective on environmental scanning activities by managers (Jackson and Dutton, 1988) and the perception of risks by top management has major effects on the consequences and actions to be undertaken, regardless of the context of the business (Chattopadhyay et al, 2001).

For this reason, I have decided to take into account 16 different sources of risks, that are all the ones that were assessed through the questionnaire. Some of these risk sources are very general and broad, others are more specific, but they are all present in the categories of the top ten disruptions to business 2018 (BSI, 2018), meaning that they can represent with a good approximation the major risks that firms within different business contexts might encounter.

These 16 different possible risks have been categorized into three different subgroups depending on their source, following the usual classification of internal, external and transactional environment.

Regarding the external (or *general*) *environment*, all the possible risks that are not directly controllable by the firm, but that are rather depending on external forces have been

included. This variable comprises social or economic disturbing events, natural disasters, hacking informatic attacks, crimes and changes in legislation.

*Internal environment* is represented by all the possible risks that are generated inside the organization, that can be predicted and where the organization has control. They are cash flow problems, loss of key employees, technical malfunctions, personal problems (like diseases) and issues with commercial buildings or production plants.

Lastly, *transactional environment* refers to all the possible risks and threats connected to stakeholders. In this variable, there are the lost or failure of an important client, the lost or failure of an important supplier, the increase of intensity of existing rivals, the rise of new competitors, the increase of the costs for materials and services and the interruption of supply of materials and services.

Each of these three variables has been calculated as the sum of the scores given to each single item divided by the total number of the items forming the subgroup, with the final score of external environment, internal environment and transaction environment each possibly ranging from 1 to 5. General environment has a mean of 2.53 (S.D. 0.88), internal environment 2.90 (S.D. 0.86) and transactional environment 3.14 (S.D. 0.86).

These three variables are tied together to form the latent variable Situation Awareness. Indeed, both loadings and p-values are acceptable because loadings are  $> 0.7$  (as Hulland, 1999 suggests) and p-values  $< 0.05$ , therefore the three sub environments are together a good predictor of situation awareness.

#### *Management of keystone vulnerabilities*

Keystone vulnerabilities are operational and managerial aspects of an organization that have a potential to cause a negative impact to the organization at various levels (McManus et al, 2008), and the resilience of a firm is also depending on the way these aspects are managed.

Keystone vulnerabilities can be either tangible or intangible, also being represented by the relationships between key groups (McManus et al, 2008).

I have chosen to use two items to represent this construct; however, in the model I have kept them separate in order to underline the distinct effects that these two variables can give to both organizational resilience and performance outputs, without building a latent variable called “management of keystone vulnerabilities”.

Indeed, even though *attitude to risk* and *risk preparedness* have been chosen to describe management of keystone vulnerabilities, they were measured separately and they are not

strictly related, therefore the model does not lose any strength or efficacy by considering the two variables separately.

*Attitude to Risk.* The first of the two variables that describe the ability of the firm to manage important possible vulnerabilities is defined as “attitude to risk” and is represented by the number of different sources that the business leader has consulted in the recent period.

This variable perfectly describes the “relationships between key groups internally and externally, communications structures and the perception of the organization strategic vision” (McManus et al, 2008, pag. 83) that are part of the management of keystone vulnerabilities described by McManus et al (2008).

The choice of organizational resources is a key and critical step for every organization and will largely depend on investigation and study (McManus et al, 2008), which can be elaborated with the help of external sources, that can represent protective factors (Werner, 2000). Therefore, external sources are seen as a way to better manage possible vulnerabilities that are present inside a firm or that may rise due to future, unexpected events.

In the study, the exact question was: “which of the following external sources of information or advice have you used in the last 12 months?”. The possible answers ranged from banks, advisors, associations, friends and family and more, and the option “none” was also present. The different responses were eventually summed up; the final sum for every response represents the number of different sources that have been consulted in the previous 12 months.

Responses range from a minimum of 0 (no external sources were consulted in the previous year) to a maximum of 7 (7 different sources were consulted). The mean is 0.91 (S.D. 1.26).

*Risk preparedness.* The other component of management of keystone vulnerabilities is “risk preparedness”, meaning the way firms handle and approach risks, representing an estimation of their preparedness to possible negative scenarios. I argue that a firm that has detailed plans and perfectly knows how to act in response to adversities is better able to manage keystone vulnerabilities, in comparison to firms that are not prepared and that simply react, bounce back to negative situations.

The question business leaders had to ask was: “which of these statements better describe your feelings about the risks of the firm?” with four possible answers. Either “we don’t

think to risks until they emerge”, “we sometimes think about risks, but we do not formulate specific plans on how to deal with them”, “we regularly think about risks and we do formulate plans to handle them”, “we have a formulated plan with response strategies that we regularly update”. This variable, which is categorical, was coded from 1 to 4 in a growing order, with a higher number meaning a more organized way to deal with risks. Therefore, this variable is ordinal and can be easily interpreted.

The minimum value is 1, the maximum is 4, with a mean of 2.53 (S.D. 0.94).

### *Adaptive Capacity*

Adaptive capacity is described as the ability of the organization to mute and adapt its different strategies, structures and operations to the changing environment; it considers aspects of the firm like the decision making structure or the acquisition and spread of information and knowledge (McManus et al, 2008).

I have decided to compose this latent variable with two variables that define the formalization level of the organization and its coordination level, since adaptive capacity “is a measure of the culture and dynamics of an organization that allow it to make decisions in a timely and appropriate manner” (McManus et al, 2008, pag. 83). Indeed, the level of formalization and the types of coordination mechanisms adopted by a small and medium enterprise can draw a crucial role when a firm needs to rapidly adapt, especially in crisis contexts.

Similarly to the management of keystone vulnerabilities, I have decided to keep these two variables separate and not to create a latent variable identifying adaptive capacity.

*Formalization level.* In the questionnaire, business leaders had to indicate which areas of the organizations were formalized, choosing among administration & finance, Information technology, Human resources, R&D, operations, marketing and sales.

In this research, being formalized was described as “the existence of a responsible person for the specific department or function, independently from the number of collaborators depending to him or her for the specific function”. It is important to note, for the development of the model and of the hypotheses, that this definition differs from the usual concept of formalization that might be possible to read in the books of organizational theory, mainly for its extreme simplicity. Indeed, usually formalization is conceived as rigid rules, mostly written, that determine the division of labor and coordination inside an organization.

The debate whether formalization is beneficial or harmful is open. From one side, formalization could be seen as costly and too bureaucratic for small firms, whose competitive advantage mainly resides in flexibility and short time to market (Reymen et al, 2015), impeding creativity and adaptive behaviors by employees (Somers, 2009).

However, clarifying roles and responsibilities for SMEs can impact positively on business resilience (Blatt, 2009); moreover, whereas centralization might be harmful for small and medium firms because it increases time to market, formalization might actually shorten it, making it worth to invest in this mechanism (Palmiè et al, 2016).

Terziovski (2006) believes big and small firms are not different in the key drivers of performance, therefore suggesting SMEs to mirror their bigger counterparts in their innovation strategies and formal structures.

Formalization also helps stakeholders in the relationships inside the firm and help to understand the context of collaboration in which the SME itself operates (Vlaar, 2006).

Finally, optimization involves formalized structures for both authority and decision making (Uhl-Bien et al, 2007).

In the questionnaire, business leaders had to indicate which functions or departments were formalized in their organization. The responses were summed in order to obtain the total number of formalized areas inside the organization, with possible final scores ranging from 0 to 6.

In my research, the minimum value is 0, the maximum is 6, with a mean of 3.08 (S.D. 1.76).

*Coordination level.* In the questionnaire, business leaders were asked how often, on a scale from 1 to 5, where 1 is never and 5 is always, coordination and information flow were regulated by different mechanisms: hierarchical superior, written rules and procedures, connecting roles and teams (like product managers, project managers and task forces).

The possible answers were never, rarely, occasionally, often, always.

According to Gittel (2002), coordination mechanisms like routines, boundary spanning and team meetings are effective in conditions of uncertainty, while it is argued that personal coordination mechanisms are positive because they increase ambidexterity of the organization, meaning its efficiency and adaptability in coping with the future (Mom et al, 2009).

Moreover, coordination mechanisms reduce uncertainties (Cremer, 1980) and determine efficiency in organizational structure (Becker and Murphy, 1992).

In order to categorize this variable, I decided not to simply sum all the scores (the five possible answers were attributed growing values from 1 to 5), because it would have determined a sum of different items without taking into consideration any weight.

Rather, I have decided to consider who answered “occasionally”, “often” or “always” as organizations that use a certain coordination mechanism, while I have considered who answered “never” or “rarely” as firms that do not use that coordination mechanism.

Therefore, instead of having 5 possible answers to each coordination mechanism, I have recoded the results so that there are now only 2 possible answers, don’t use (1,2) or use (3,4,5). Therefore, I have recoded the responses so that firms can indicate to use one, two or three coordination mechanisms, among hierarchical superior, written rules and procedures, connecting roles and teams, or even none of them.

The variable coordination level was built by summing the number of coordination mechanisms used, ranging from 0 to 3. With this categorization, every coordination mechanism do not interfere with the others and is treated per se.

In my research, the minimum value is 0, the maximum is 3, the mean is 1.89 (S.D. 1.10).

#### 5.4.3 Expected Performance

Expected performance is the dependent variable of my model.

In my research, I have decided to use the expectation of growth of the firm, expressed as the opinion of the business leader with a financial indicator (turnover growth), rather than, for instance, by assessing the growth of the number of employees.

Business leaders have been asked if they believed the turnover of the firm would be likely to increase, decrease or stay roughly the same in the following twelve months.

As a consequence, I have coded decrease as 1, stay roughly the same as 2 and increase as 3. Therefore, this variable is categorical and ordinal.

The minimum value is 1, the maximum is 3, the mean is 2.47 (S.D. 0.63).

#### 5.4.4 Control Variables

In my research, I want to assess the role of some individual and organizational variables in relation to expected performance: gender and age of the business leader are my individual control variables, while family business and network are my organizational control variables.

##### *Gender*

Robb and Watson (2012) as well as Watson (2012) found no significant differences in performances of ventures guided by male and female leaders.

However, other authors arrived at different results. For instance, lower levels of sales, profits and employment were found in women-owned firms in comparison to men-owned ones, with the former that were also more likely to be shut down (Kalleberg and Leicht, 1991; Rosa et al, 1996; Robb, 2002; Robb and Wolken, 2002).

In a study on Malaysian public listed family businesses, results were in line with these findings, with male owners that were able to provide greater value for the firm (Amran, 2011).

Fairlie and Robb (2009) concluded in their research that female-owned enterprises were 13% more likely to close and 53% less likely to have profits of at least 10.000\$, with their mean annual sales that were almost 80% lower than male owned firms.

In trying to explain the reasons of these results, the authors pointed out several explanations. Even though female business owners are less likely to have very low level of education of male entrepreneurs, they are also less likely to have graduate degrees. Apart from the education level, female leaders also have less experience, as well as low levels of startup capital. According to the author, these differences explain differences in performance by gender found in the research.

Gottschalk and Niefert (2011) provide different explanations for the underperformance of firms guided by females, with gender differences in human capital, team size, entrepreneurial motivation and industry distribution held responsible.

In my research, gender is a dummy variable and it has been coded as follows: 1 for females, 0 for males.



### *Age*

According to Stuart and Abetti (1990), the age of the business leader does not influence on the performance of the firm, while, for instance, a very important factor is his or her ages of experience in previous ventures.

Spisak et al (2014) underline that the age of the entrepreneur explains more conservative (older) or more exploratory (younger) behaviors in the strategies pursued for the business, but is not directly responsible for differences in performance.

Differently, a robust negative relationship between age and performance of the firm was found by Waelchli and Zeller (2013), explained by deteriorated cognitive abilities and lower motivation of older business leaders.

On the same line, Amran (2011) found a negative relationship between age and performance of the firm both regarding market and accounting value.

The relationship between age and performance have been investigated at the employees level as well, in order to understand its links with performance. According to the study of Grund and Westergard-Nielsen (2008), age is inversely u-shaped related to performance, meaning that middle aged employees drive higher firm performances, probably thanks to the fact that they are more experiences than very young entrepreneurs, but they also have higher motivation and cognitive abilities than older business leaders.

In the questionnaire, business leaders were asked to indicate whether they were younger than 25 (1), between 25 and 34 (2), between 35 and 44 (3), between 45 and 54 (4), 55 and 64 (5), 65 and 74 (6) or older than 75 (7), with codification as in brackets.

This variable is therefore ordinal, with higher values representing older business leaders.

### *Family Business and Network*

In the questionnaire, business leaders indicated whether their firms were family businesses (which is, the majority of the ownership is controlled by the family) and if they belonged to a network of firms.

Therefore, it is possible to test what is the relationship with expected performance, investigating if, for example, firms that belong to a network are expecting higher growth than the others, due to synergies and mutual assistance.

Amann and Jaussaud (2012) found that family businesses achieved stronger resilience both during and after an economic downturn, if compared to non-family businesses. The consequence of this finding might be that family businesses also perform better, therefore expecting higher revenues, as also suggested by literature.

Allouche et al (2008) confirmed this relationship in an empirical research across Japanese firms; higher revenue growth and profitability of family compared to non-family firms of the S&P 500 were also found (Lee, 2006).

Moreover, I want to assess whether belonging to a network has effects on the expected performance of the firm. It is important to leverage network relationships (Prashantham, 2006) and it seems logical to think that the affiliation with a network can provide experience and support that can eventually translate into higher expected performance.

Therefore, my aim is to test whether these findings and hypotheses are true and valid also across my sample of 481 small and medium enterprises of the Milan metropolitan area.

Family businesses were coded as 1, as well as firms belonging to networks. 0 was used for firms that indicated not to be a family business and for firms not being part of a network.

## **5.5 Hypotheses**

Hypothesis 1. *Individual resilience will be positively associated with expected performance.*

Regarding the relationship between the individual resilience of the business leader and the overall expected performance of the firm, I expect a positive relationship.

Individual resilience predicts entrepreneurial success (Fisher et al, 2016) with individual hardiness, persistence and optimism being important factors. According to Baron and Henry (2012), however, expecting a relationship between individual resilience and firm performance might be optimistic, because many factors like the interaction between costs, revenues and the environment are crucial and relevant in the definition of the performance of an enterprise. Nevertheless, I believe that the personality and characteristics of the business leader in the small and medium enterprises context can provide concrete advantages because of the particular importance that the business leaders have in this scenario. As he or she can shape organizational culture (Kane-Urrabazo, 2006) I believe he or she can also transmit his or her resilient characteristics to the firm, providing concrete results.

A case study on the Ontario construction industry highlighted the key role of individual resilience in impacting on safety performance, providing insights for investing also in

individual resilience and psychological characteristics to achieve good safety outcomes in the construction business (Chen et al, 2017).

Avery and Bergsteiner (2011) also provides practical results on the fact that managers can build practices not only to increase organizational resilience, but also to impact on organizational performance.

In addition, it would not be a surprise if intangible components like individual resilience could have an impact on tangible outcomes like the performance of the firm. Indeed, it has been studied that a certain style of leadership, like the transformational one, has an augmentation effect over transactional leadership in predicting team performance (Wang et al, 2011); charismatic leadership has also been associated with increased performance (Kirkpatrick and Locke, 1996).

Evidence of the importance of resilience in entrepreneurial success are provided by Baron and Markman (2003) and Wall-Mullen and Enwick (2015); it is also underlined that performance is a function of resilience (Hayward et al, 2010; Baron and Markman, 2003). Finally, Ayala and Manzano (2014) found that, in the field of small and medium enterprises, there is a positive association between the resilience of the entrepreneur and the growth of the business.

*Hypothesis 2. Organizational resilience mediates the effect between individual resilience and expected performance.*

I believe organizational resilience can have an impact on the relationship between individual resilience and expected performance, thus acting as a mediator. It is plausible, from one side, that business leaders of small and medium enterprises play a role in defining the capability of an organization to deal with changes through learning and adaptation (Folke et al, 2011) by transferring some of their qualities and characteristics to the organization; from the other side, it is also plausible that an organization that better resist and recover from crises, adapt, and bounce forward can expect higher performances, for example in terms of revenues, compared to their non resilient or less resilient competitors.

The hypothesis of a mediating effect means that there would be a third variable, in this case organizational resilience, that plays an intermediate role between the independent and the dependent variables.

In constructing organizational resilience, my research follows the model of McManus et al (2008), which includes situation awareness, management of keystone vulnerabilities and adaptive capacity as main pillars to define it. I hypothesize that the variables that compose organizational resilience in my model, which are situation awareness, risk preparedness, attitude to risk, formalization level and coordination level, can mediate the direct effect that the resilience of the business leader has on the expected performance of the firm. For instance, the existence or not of written rules and procedures, hierarchical superior and teams might change the way individual resilience influences expected performance.

## **5.6 Methodology**

In order to build my model and to test my hypotheses, I decided to use a structural equation modeling (SEM) by using the second generation multivariate data analysis method Smart PLS.

With this software, one can immediately visualize all the variables of the model and can build latent variables that are not easily measurable in reality.

I will use the partial least squares method, which focuses on the analysis of variance and that does not provide any assumption on data distribution (Vinzi et al, 2010).

My model makes use of latent variables and is a second order model; hierarchical latent variable models are “explicit representations of multidimensional constructs that exist at a higher level of abstraction” (Becker et al, 2012, pag. 362).

These kinds of models have two main characteristics. The first one is that they have more than one levels forming the model itself and the second one is the relationship between or among the two or more levels, that can be either formative or reflective (Becker et al, 2012).

My model is a reflective-formative type model. Indeed, three indicators of the lower order constructs, in my case general environment, internal environment and transactional environment, are reflectively measured and form a general concept that indeed reflects a latent variable, in this case “situation awareness”.

The three indicators of situation awareness are reflective: they are highly correlated and interchangeable and therefore their validity and reliability have to be deeply examined (Wong, 2013; Petter et al, 2007). As such, I will examine their outer loadings, composite

reliability, AVE and square root. The other variables of the lower order construct are determined by a single indicator.

The second level of my model, which is the one formed by organizational resilience, is a formative type. Indeed, the variables (situation awareness, attitude to risk, risk preparedness, formalization level and coordination level) cause the latent variable organizational resilience and they are not interchangeable. A change in one indicator does not necessarily imply a change in the same direction of another indicator. As Petter et al (2007) and Kaplan and Haenlein (2010) explain, these variables can have positive, negative or even no correlation at all, therefore it is meaningless to report indicator reliability and internal consistency of uncorrelated measures (Wong, 2013).

In order to test the statistical significance of the PLS-SEM results I have used a non-parametric procedure called “bootstrapping”. Indeed, the parametric significance tests, as used in regression analyses, cannot be used to test the significance of coefficients like outer weights and path coefficients; however, PLS-SEM uses a non-parametric bootstrap procedure that is able to do so (Efron and Tibshirani, 1986; Davison and Hinkley, 1997). Hair et al (2017) explain the bootstrapping procedure as follows.

Bootstrapping randomly draws subsamples from the original set of data, with mean replacement, and these subsamples are used to estimate the PLS model. This process is repeated in order to create a large number of subsamples (5000 as suggested by Hair et al, 2011). The estimations from the bootstrap subsamples are used to derive standard errors for the PLS-SEM results. With this information, t-values, p-values, and confidence intervals are calculated to assess the significance of PLS-SEM results.

## **5.7 Analysis & Results**

First of all, in order to check for possible multicollinearity problems, I have run the variance inflation factor (VIF) analysis, displayed in table 5.2. VIF is the quotient of the variance in a model with multiple terms by the variance of a model with one term alone (James et al, 2017). In practical terms, it provides an index that measures how much the variance of an estimated coefficient is being inflated by collinearity. Values of 1 indicate that variables are uncorrelated, while a  $VIF \geq 5$  (tolerance level 0.2 or higher) indicates high correlation and potential problems, according to a rule of thumb (Hair et al, 2011).

Therefore, there are no problems of multicollinearity since all the values are even below 2.5.

Table 5.2 *Multicollinearity index (VIF)*

	VIF		VIF
AGE INDIVIDUAL	1.000	INDIVIDUAL RESILIENCE	1.000
ATTITUDE TO RISK	1.042	INTERNAL ENVIRONMENT	2.214
COORDINATION LEVEL	1.150	EXPECTED PERFORMANCE	1.000
FAMILY BUSINESS	1.000	RISK PREPAREDNESS	1.088
FORMALIZATION LEVEL	1.137	NETWORK	1.000
GENERAL ENVIRONMENT	2.038	TRANSACTIONAL ENVIRONMENT	1.738
GENDER	1.000		

Source: own elaboration

Correlations among study variables, which indicates the strength of the relationship between the variables, are shown in table 5.3. Note that organizational resilience and situational awareness have mean of 0 and standard deviation of 1, because Smart PLS requires standardized latent variables scores for the algorithm to run (Henseler et al, 2012)

Table 5.3 *Correlation among study variables*

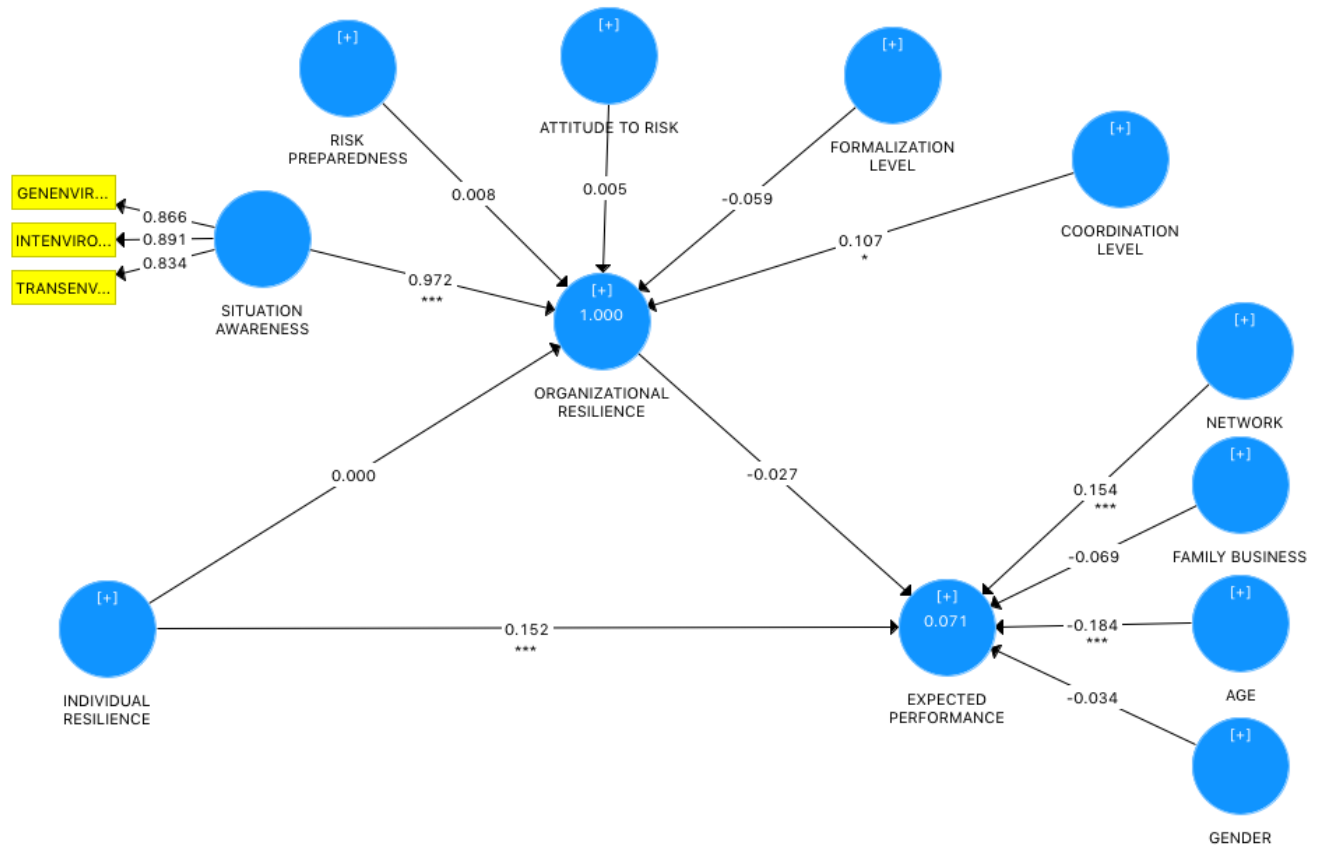
	MEAN	S.D.	1	2	3	4	5	6	7	8	9	10	11	12
ATTITUDE TO RISK (1)	0.91	1.26	1.000											
AGE (2)	4.01	1.21	-0,111	1.000										
COORDINATION (3)	1.89	1.10	0,118	0,067	1.000									
EXPECTED PERFORMANCE (4)	2.47	0.63	0,129	-0,140	0,085	1.000								
FAMILY BUSINESS (5)	0.73	0.45	0,016	0,039	-0,061	-0,078	1.000							
FORMALIZATION (6)	3.08	1.76	0,142	0,140	0,240	0,075	-0,062	1.000						
GENDER (7)	0.48	0.52	0,022	0,070	0,084	-0,040	0,090	0,010	1.000					
INDIVIDUAL RESILIENCE (8)	31.58	5.33	-0,115	0,106	0,086	0,130	0,000	0,092	0,102	1.000				
NETWORK (9)	0.38	0.49	0,240	0,173	0,187	0,125	-0,005	0,227	-0,015	0,002	1.000			
ORGANIZATIONAL RESILIENCE (10)	0	1	0,009	-0,214	0,244	0,010	-0,058	-0,135	0,010	0,007	-0,044	1.000		
RISK PREPAREDNESS (11)	2.53	0.94	0,131	-0,004	0,204	0,175	-0,019	0,202	0,011	0,072	0,046	0,016	1.000	
SITUATION AWARENESS (12)	0	1	-0,001	-0,219	0,153	0,004	-0,057	-0,107	0,001	0,003	-0,054	0,994	-0,002	1.000

Source: own elaboration

In my analysis, I will firstly focus on the direct relationship between individual resilience and expected performance, in order to test hypothesis 1. Afterwards the analysis of the results will cover the formation of the latent variable organizational resilience and the relationship between individual resilience and organizational resilience and between organizational resilience and expected performance, examining whether a mediation effect exists or not.

The whole model with path coefficients and loadings is shown in figure 5.4.

Figure 5.4 *Model with path coefficients running the PLS algorithm*



Source: own elaboration

Hypothesis 1. *Individual resilience will be positively associated with expected performance.*

#### Explanation of target endogenous variable variance

The coefficient of determination,  $R^2$ , which is the proportion of the variance (%) in the dependent variable that can be explained by the independent variable (Moore et al, 2013), is 0.071 for the Expected Performance endogenous latent variable. This means that the latent variables in the model only explains 7.1% of the variance in the expected performance. This effect is considered very weak (Moore et al, 2013), thus the relationship between individual resilience and expected performance is not strong.



Inner model path coefficient sizes and significance

Individual resilience has a positive effect on expected performance (0.152) and the hypothesized path relationship between these two variables is statistically significant ( $p$  value = 0.001), therefore it can be said that individual resilience is a very weak predictor of expected performance and that a direct effect of individual resilience on expected performance exists.

**Hypothesis 1 is verified: individual resilience is positively associated with expected performance.**

Hypothesis 2. *Organizational resilience mediates the effect between individual resilience and expected performance.*

First of all, I will focus on the description of the latent variable “organizational resilience” and of the variables that compose it, then I will analyze the mediation effect and therefore the relationship among individual resilience, organizational resilience and expected performance.

Organizational resilience is composed of five variables, according to the formative approach: situation awareness, attitude to risk, risk preparedness, coordination level and formalization level.

Situation awareness is the only variable that is formed by other indicators, in this case with the reflective approach. The other four variables are stand-alone variables that predict organizational resilience.

Situation awareness is formed by three indicators, which are general environment, internal environment and transactional environment, which have reflective measurement. Therefore, it is important to assess reliability and internal consistency to assure that these three indicators are correlated among each other.

First of all, we need to check whether the outer loadings are significant in order to account for indicator reliability.

According to an established rule of thumb, the latent variable should explain at least 50% of the variance of each indicator. Since 0.50 squared is 0.708, the outer loadings should be at least 0.708 in order to be significant.

In my research, all the outer loadings of the three indicators are indeed significant: general environment (0.866), internal environment (0.891) and transactional environment (0.834), as shown in the model of figure 5.6.

Regarding internal consistency reliability, the measure to look at is composite reliability, which is similar to Cronbach's alpha. Traditionally, Cronbach's alpha is used in social sciences to measure internal consistency reliability (Wong, 2013); however, in PLS-SEM it might provide a conservative measurement (Wong, 2013) and therefore composite reliability is suggested (Bagozzi and Yi, 1988; Hair et al, 2012).

According to Bagozzi and Yi (1988), composite reliability should be 0.7 or higher, but 0.6 is an acceptable value in exploratory researches. In my research, this index is 0.898, higher than the minimum value.

Finally, in order to assess convergent validity, average extracted variance (AVE) should be assessed. AVE is "a measure of the amount of variance that is captured by a construct in relation to the amount of variance due to measurement error" (Fornell and Larcker, 1981, pag. 45). According to Bagozzi and Yi (1988), this index should be 0.5 or higher in order to be acceptable. In my research, the AVE of situation awareness is 0.746, therefore acceptable.

Reliability and validity measures related to situational awareness are indicated in table 5.4.

Table 5.4 *Reliability and validity measures of the variable "Situation Awareness"*

	<b>Cronbach's alpha</b>	<b>rho A</b>	<b>Composite Reliability</b>	<b>Average Variance Extracted (AVE)</b>
<b>Situation Awareness</b>	0.829	0.831	0.898	0.746

Source: own elaboration

Adaptiveness to risk, risk preparedness, coordination and formalization are variables formed by one single indicator and, together with situation awareness, form

organizational resilience. Indeed, organizational resilience is a formative measure, because the five variables form the latent variable, that represents a more general abstract concept (Becker et al, 2012).

In order to measure organizational resilience, two different methods could be used: the repeated indicator approach and the two-stage approach (Becker et al, 2012).

In the repeated indicator approach, organizational resilience can be constructed by building a latent variable that represents all the manifest variables of the lower order constructs (Becker et al, 2012). Therefore, the manifest variables are used both for the lower and higher order constructs.

The other method, the two-stage approach, estimates the scores of the first order constructs in a first stage model and consequently uses these scores as indicators for the higher order latent variable in a separate second stage analysis (Becker et al, 2012).

The advantage of the repeated indicator approach is that it allows to estimate all the model simultaneously, instead of splitting it into lower and higher order, therefore estimating the whole network all at once, avoiding “interpretational confounding” (Becker et al, 2012, pag. 365). Therefore, even if it has the disadvantage that the lower order constructs explains all the variance of the higher order one, because of the use of the same indicators for both the lower and higher model (Becker et al, 2012), I have decided to use this method in order to diminish the possible biases in the interpretation of the results.

Indeed, a simulation conducted by Becker et al (2012) concluded that the repeated indicator approach for reflective-formative models led to more precise results than the two stage approach, even though none of them showed biased results.

It is possible to analyze the path coefficient sizes of the variables that compose organizational resilience and their relative p-values.

#### Inner model path coefficient sizes and significance

The inner model shows that situation awareness has the strongest effects on organizational resilience (0.972) and the path relationship is significant (p-value 0.000). The other significant variable is coordination level (0.107, p-value 0.015). However, the hypothesized path relationships among attitude to risk and organizational resilience (p-value 0.912), risk preparedness and organizational resilience (p-value 0.874), formalization level and organizational resilience (p-value 0.220) are not significant.

Path coefficients sizes and significance related to organizational resilience are shown in table 5.5.

Table 5.5 Path coefficient sizes and significance of the variable “Organizational resilience”

	<b>Original Sample</b>	<b>Sample Mean</b>	<b>Standard Deviation</b>	<b>T- statistics</b>	<b>P- Values</b>
<b>Situation Awareness</b> → Organizational resilience	0.972	0.959	0.017	57.950	0.000
<b>Attitude to risk</b> → Organizational resilience	0.005	0.004	0.041	0.111	0.912
<b>Risk preparedness</b> → Organizational resilience	0.008	0.005	0.05	0.158	0.874
<b>Coordination level</b> → Organizational resilience	0.107	0.104	0.044	2.440	0.015
<b>Formalization level</b> → Organizational resilience	-0.059	-0.059	0.048	1.227	0.220

Source: own elaboration

Regarding the mediation effect, I hypothesize that organizational resilience mediates the relationship between individual resilience and expected performance. Therefore, I need to check whether individual resilience and organizational resilience are correlated and if organizational resilience influences expected performance as well.

#### Inner model path coefficient sizes and significance

Individual resilience and organizational resilience are not correlated (0.000) and the relationship is not significant (p-value 0.938). Organizational resilience is not correlated with expected performance neither (-0.027, p-value 0.586).

According to Iacobucci et al (2007), the main criterion for determining mediation is to test whether the strength of the indirect path is significantly different from zero and this is equal to test the difference between the total effect and the direct effect (Baron and Kenny, 1986).

In my model, all the possible indirect effects are non significant (p-values > 0.05)

These results show two main consequences. First, organizational resilience does not mediate the relationship between individual resilience and expected performance. Second, organizational resilience does not influence expected performance as a stand-alone entity; indeed, it might have been that individual and organizational resilience were not related, but that organizational resilience was able to influence expected performance, but this is not the case.

Table 5.6 and 5.7 show the total effects of the model and the specific indirect effect of individual resilience on expected performance, which is non significant.

Table 5.6 *Total Effects*

	<b>Original Sample</b>	<b>Sample Mean</b>	<b>Standard Deviation</b>	<b>T Statistics</b>	<b>P Values</b>
AGE → EXPECTED PERFORMANCE	-0.184	-0.185	0.045	4.066	0.000
ATTITUDE TO RISK → EXPECTED PERFORMANCE	-0.000	0.001	0.002	0.051	0.960
ATTITUDE TO RISK → ORGANIZATIONAL RESILIENCE	0.005	0.004	0.041	0.111	0.912
COORDINATION LEVEL → EXPECTED PERFORMANCE	-0.003	-0.002	0.005	0.551	0.582
COORDINATION LEVEL → ORGANIZATIONAL RESILIENCE	0.107	0.104	0.044	2.440	0.015
FAMILY BUSINESS → EXPECTED PERFORMANCE	-0.069	-0.069	0.041	1.656	0.098
FORMALIZATION LEVEL → EXPECTED PERFORMANCE	0.002	0.003	0.005	0.352	0.725
FORMALIZATION LEVEL → ORGANIZATIONAL RESILIENCE	-0.059	-0.059	0.048	1.227	0.220

INDIVIDUAL RESILIENCE → EXPECTED PERFORMANCE	0.152	0.152	0.047	3.222	0.001
INDIVIDUAL RESILIENCE → ORGANIZATIONAL RESILIENCE	0.000	0.000	0.000	0.078	0.938
NETWORK → EXPECTED PERFORMANCE	0.154	0.154	0.044	3.494	0.000
ORGANIZATIONAL RESILIENCE → EXPECTED PERFORMANCE	-0.027	-0.027	0.050	0.544	0.586
RISK PREPAREDNESS → EXPECTED PERFORMANCE	-0.000	0.001	0.003	0.068	0.946
RISK PREPAREDNESS → ORGANIZATIONAL RESILIENCE	0.008	0.006	0.050	0.158	0.874
SITUATION AWARENESS → EXPECTED PERFORMANCE	-0.026	-0.026	0.047	0.553	0.580
SITUATION AWARENESS → ORGANIZATIONAL RESILIENCE	0.972	0.959	0.017	57.950	0.000

Source [own elaboration]

Table 5.7 Specific Indirect Effect of Individual resilience on Expected Performance

	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values
INDIVIDUAL RESILIENCE → ORGANIZATIONAL RESILIENCE → EXPECTED PERFORMANCE	-0.000	0.000	0.000	0.027	0.979

Source: own elaboration

**Hypothesis 2 is not verified: Organizational resilience does not mediate the effect between individual resilience and expected performance**





## 6. CHAPTER SIX

### **Discussion**

This final chapter of my dissertation aims at giving final comments, interpretations and insights on the results of my paper, comparing them with existing literature and trying to find possible explanations for the non-verified hypothesis.

Moreover, I will try to provide instruments for practical solutions that can derive from my results in order to concretely suggest managerial implications.

Finally, I will expose the limitations and room for improvement of my research.

#### **6.1 Theoretical Implications**

##### Individual Resilience and Expected Performance.

The hypothesized relationship between individual resilience and expected performance has been confirmed by the findings, although resulting very weak.

From my results, I can state that the individual resilience of the leader of a small or medium company explains a minimum part of the variance of the expected performance of the firm he or she runs.

Therefore, my results indeed suggest that individual resilience and expected performance are connected and that the former can influence the latter. This is in line with findings from Hayward et al (2010) that showed how entrepreneurs, by developing emotional, cognitive, social and financial resilience would eventually guide more successful ventures and with Baron and Markman (2003) that found that social adaptability, that certainly is a resilient characteristic, was related to financial success.

Similarly, my research also follows findings from Ayala and Manzano (2014): individual resilience has a positive and significative influence in explaining company's growth.

However, the relationship, as stated above, is very weak. Indeed, as Baron and Henry (2012) state, it would probably be optimistic to believe that the resilience of the individual could strongly influence the expected performance of a whole firm.

### Organizational Resilience.

My research offers important insights regarding the variables that compose organizational resilience. In building this latent variable, I have followed the three pillars of the model of McManus et al (2008), practically translating with five variables the theoretical indications of the authors, being situation awareness, management of keystone vulnerabilities and adaptive capacity the key points to build resilient organizations; in explaining the results, I have also followed Becker et al (2012), in which their latent variable “instrumental dimensions” acts as a mediator (similarly to organizational resilience) and not all the relationships causing it are statistically significant.

In my model, among the five variables taken into consideration, only two of them are statistically significant: situation awareness and coordination level.

Risk preparedness, attitude to risk and formalization level, indeed, are not significant in explaining organizational resilience.

“Risk preparedness” refers to the way firms deal with risks, whether, from one extreme, they only face problematic situations when they happen or, to the other extreme, they have regular plans that they carefully update. It seemed logical to think that the way a firm handles risks concurred to define its organizational resilience, but this is not the case.

It might be that in small and medium enterprises, planning activities are not a key feature and do not impact in defining the resilience of the organization as a whole. Because of their limited dimension, planning activities related to risk might not make the difference in the level of resilience of small and medium firms, with a strong position of the leader that might counterbalance a limited risk planning strategy.

In my research, the variable “attitude to risk” defines the number of communication sources that have been consulted by the firm in the last period. For example, I had hypothesized that relying on advices and support from family, friends, financial advisors, external associations, could help defining the level of resilience inside an organization. However, no significant relationship was found.

In this case, there could have been a bias with the measurement of the data. Indeed, this variable has been created as a sum of dummy variables, because respondents have been asked which of the sources of a list they have consulted in the last period. However, this question was preceded by a “yes or no” question that asked if they had consulted any source of information in the last period, that gave access to the question about the type of sources only to the “yes” respondents.

As a consequence, I have categorized as having consulted zero sources all the business leaders that had answered “no” to the first question.

In this way, I have obtained 262 firms that have not been consulted any external source, the 54% of the total (n=481).

Probably, by eliminating the first question and directly asking the question about the type of sources consulted, business leaders could mentally retrieve communication sources they have consulted, that could simply be family or friends, and this might change the results.

Finally, formalization level is not significant. This variable has been obtained as a sum of dummy variables indicating the number of formalized areas inside the organization, meaning the areas with a defined designated responsible. I have hypothesized that this variable concurred in defining organizational resilience because a more formalized firm may enhance the adaptive capacity of a firm through obstacles; however, the relationship with organizational resilience has been shown not to be statistically significant. One possible explanation is the fact that formalization is not key across small and medium enterprises and that its importance increases with size and complexity of the firm. For example, Özsomer et al (2012) state that small and medium enterprises tend to reduce formalization in order to gain flexibility, with their decision making structure which is often less formal than their bigger counterparts (D'Ambroise, 1989) and the majority of the decisions which are dependent on the figure of the business leader (Winston and Heiko, 1990) rather than on the responsible of other departments.

The two path relationships that are significant and positive are between situation awareness and organizational resilience and coordination level and organizational resilience.

Situation awareness signals how much firms and business leaders are aware of internal, external and transactional risks. As Ropega (2011) states, “the analysis and understanding of symptoms may help reduce the number of crises in companies” (pag. 476) and the perceptions of executives on threats have strong effects on actions (Chattopadhyay et al, 2001). Therefore, it is not a surprise that a higher situation awareness results in higher organizational resilience.

Coordination level indicates the number of coordination mechanisms adopted by the firm, among group work, written rules and hierarchical superior.

In my research, coordination level is positively associated with organizational resilience. The result is coherent and in line with the literature, with coordination mechanisms that were found to be effective under conditions of uncertainty (Gittel, 2002), to reduce

uncertainties (Cremer, 1980) and to determine efficiency of organizational structures (Becker and Murphy, 1992).

My findings are also in line with Herrera and Janczewski (2016) that did find correlation between organizational resilience and coordination mechanisms.

#### Individual Resilience, Organizational Resilience and Expected Performance.

In my research, I did not find any statistically significant mediation effect of organizational resilience in the relationship between individual resilience and expected performance.

First of all, the relationship between individual resilience and organizational resilience is not significant, meaning that the business leader of a small or medium enterprise is not able to transfer his or her resilient characteristics to enhance the resilience of the organization. Correlation between the two exists in literature, with the main focus concerning entrepreneurs and entrepreneurial activity (Fisher et al, 2016; Ayala and Manzano, 2014). Gunasekaran et al (2011) also concluded that the managerial characteristics can influence various aspects of the company, that in turn influence the resilience of SMEs.

However, in my research I have to conclude that entrepreneurs of small and medium enterprises of the Milan metropolitan area do not influence, with their characteristics, the resilience of the organizations they guide.

Even if the leader of the firm can be capable and responsible of influencing the culture of the organization (Kane-Urrabazo, 2006), transferring a characteristic like resilient might not be so straightforward, with human resources that might be responsible in building organizational resilience through various practices (Bardoel et al, 2014).

Second, organizational resilience has been found not to influence expected performance. Indeed, my results lead to the conclusion that a more resilient organization is not positively associated with higher expected performances.

However, this is not in line with current literature.

Resilient firms are able to resist and evolve in dynamic environments thanks to their agility and flexibility, eventually turning these characteristics into winning long-term strategies (Lengnick-Hall et al, 2011). Adaptiveness also creates value and predicts future performance, expressed in terms of financial value (Reeves et al, 2012).

A possible explanation for my findings, which are not in line with existing literature, might be connected to both the measurement of organizational resilience and the dependent variable “expected performance”.

In building the latent variable “organizational resilience”, I have followed the indications of McManus et al (2008), which defines resilience for organizations as “a function of the overall situation awareness, management of keystone vulnerabilities and adaptive capacity of an organization in a complex, dynamic and interdependent environment” (pag. 88).

However, even if the variables I have used describe characteristics and features of the organizations, they are also susceptible and dependent on the opinion of the business leader, that was the person answering the whole questionnaire. For example, situation awareness describes the level of risk that certain challenges represent for the business, but might be influenced by the perception and the judgement that the business leader has on it. Risk preparedness represents the way the firm handles risks and formulates plans and this might have also been influenced by the perception of the leader.

All the questions were answered by the business leader, therefore the line between the perception of the individual and the situation of the whole organization is sometimes very subtle and blurred.

Another source of explanation for the misalignments of my results regarding the relationship between organizational resilience and expected performance with the current literature might derive from the composition of my dependent variable.

As already stated, I didn't have any punctual data of turnover I could use, therefore I have used an ordinal variable which expresses the opinion of the business leader on whether turnover would decline, stay roughly the same or grow in the following year.

Therefore, expected performance is determined by the opinion of the business leader only and it does not represent a measurable and verifiable situation, therefore his or her judgement could have been affected by biases like “managerial myopia”. Indeed, self-serving biases might result in overly optimistic future planning: this might derive from optimistic self impressions by managers as well as by pressures to look good in front of others (Larwood and Whittaker, 1977).

### Control Variables

Age and network are the only statistically significant variables ( $p\text{-value} = 0.000$ ), while gender and family business are non-significant.

Age is negatively correlated with expected performance (-0.184). That is, older employees result in lower expected performances of the firm.

This is in line with Amran (2011) and might be explained by a decreasing motivation of business leaders or by a decrease in cognitive capabilities, following the conclusions of Waelchli and Zeller (2013).

Network is positively correlated with expected performance (0.154), therefore firms that belong to a network do expect to reach higher performances. Firms that collaborate can share information and best practices, with communication and commitment that impact on collaboration and collaboration that positively influences performance (Ramayah et al, 2011).

On the contrary, gender of the business leader (p-value = 0.453) and being a family business (p-value 0.093) are not found to influence expected performance.

If this is not a big surprise for gender, because literature finds contrasted results in the field, it is for family businesses, where different studies underline the higher performances family businesses register (Lee, 2006; Allouche et al, 2008; Amann and Jaussaud, 2011).

However, other literature suggests that risk taking in family firms is negatively related to performance (Naldi et al, 2007), and that spousal commitment is a key variable that should be taken into consideration in the differences in performance among family firms (Van Auken and Werbel, 2006).

## **6.2 Managerial Implications**

The main aim of my research was to provide meaningful insights about the relationship among individual resilience, organizational resilience and expected performance. In particular, the investigation on whether and how different types of resilience, at both individual and firm level, could influence the results of the company was the central core of my work, so that managers, employees and human resource departments could have more instruments to understand the value of resilience as a competitive advantage.

The most important finding of my study is the positive and significant relationship, although very weak, between individual resilience and expected performance.

Oppositely, I found no correlation between individual resilience and organizational resilience and between organizational resilience and expected performance. As a

consequence, according to my findings, both individuals and organizations should invest time and resources in strengthening the individual resilience of the business leader, because this can directly affect the expected performance of the firm, instead of focusing on building organizational resilience.

Resilience can be strengthened and developed through various human resource practices (Bardoel et al, 2014) which are intended and implemented to provide individuals the instruments to overcome adversities and to “maintain resources that strengthen the resilience dimension of psychological capital” (Bardoel et al, 2014, pag. 283). Therefore, organizations need to incorporate resilience building in their change management strategy, insisting on resilience focused training for individuals and resilience need to be addressed not as a stand-alone characteristic, but as a mean to reach performance goals (Cooper, Flint-Taylor, Pearn, 2013).

Leaders and managers need to take responsibilities to develop their own resilience, also by regulating their management style, with the need of balancing challenge with support and need to concretely put resilience on the agenda, demonstrating to their teams and subordinates that they care not only about performance, but also about the way employees relate and feel at work (Cooper, Flint-Taylor, Pearn, 2013).

Human resource management can propose activities to enhance social support, like process-focused interventions, open systems approaches or methods that enhance collaboration, like work teams, as well as practices able to act on resilience and psychological capital like training workshops in mindfulness and resilience development techniques (Bardoel et al, 2014).

### **6.3 Limitations and suggestions for future research**

This study presents some limitations that should be addressed in future research.

One limitation is that my whole model is based on the information, data and opinions of one single person, the business leader of the firms. Clearly, increasing the number of respondents per firm, for instance interviewing the direct responsible for determined areas or divisions when asking questions specifically addressed for that role, could increase accuracy.

Also, the data in my possess did not allow me to build the latent variable “organizational resilience” with all quantitative and quantifiable data. Therefore, although organizational

resilience has been built based on a well validated model (McManus et al, 2008), it is susceptible of improvement for what concerns its accuracy and precision. Moreover, more variables might be added to the construct to describe situation awareness, management of keystone vulnerabilities and adaptive capacity of the firms, if additional data were available.

Another limitation of the model, that might have been contributed, as already stated, to the non-significant relationship between organizational resilience and expected performance, is the absence of a multinomial variable as the dependent variable, that would certainly result more accurate than an ordinal one.

Moreover, in providing a representation for the future of the business in terms of turnover growth, business leaders might have been influenced by the so called “managerial myopia”. Indeed, it has been studied that managers might have overly optimistic impressions of their business and they might also have been biased by pressures to look good in front of others (Larwood and Whittaker, 1977).

For future research, data on individual and organizational resilience of the other European cities involved in the survey could be used, in order to have a greater sample of individuals and firms and to take into account different factors, like cultural variables or specific indexes of different countries.

In addition, punctual data of turnover of firms could be retrieved from Aida or other databases in order to account for the turnover difference of the same firm in different moments, ensuring a time consequent measurement of resilience, also measuring performance before and after a real shock or adversity situation.



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